



**H29A 595 (Location: 335594)**  
**Pit (Facility: 433716)**  
**Encana Oil & Gas (USA) Inc. (Operator: 100185)**

### **REPORT OF WORK COMPLETED**

- Form 27 (Doc: 2146043) (Rem: 7966)
- Form 19 (Doc: 2231696)

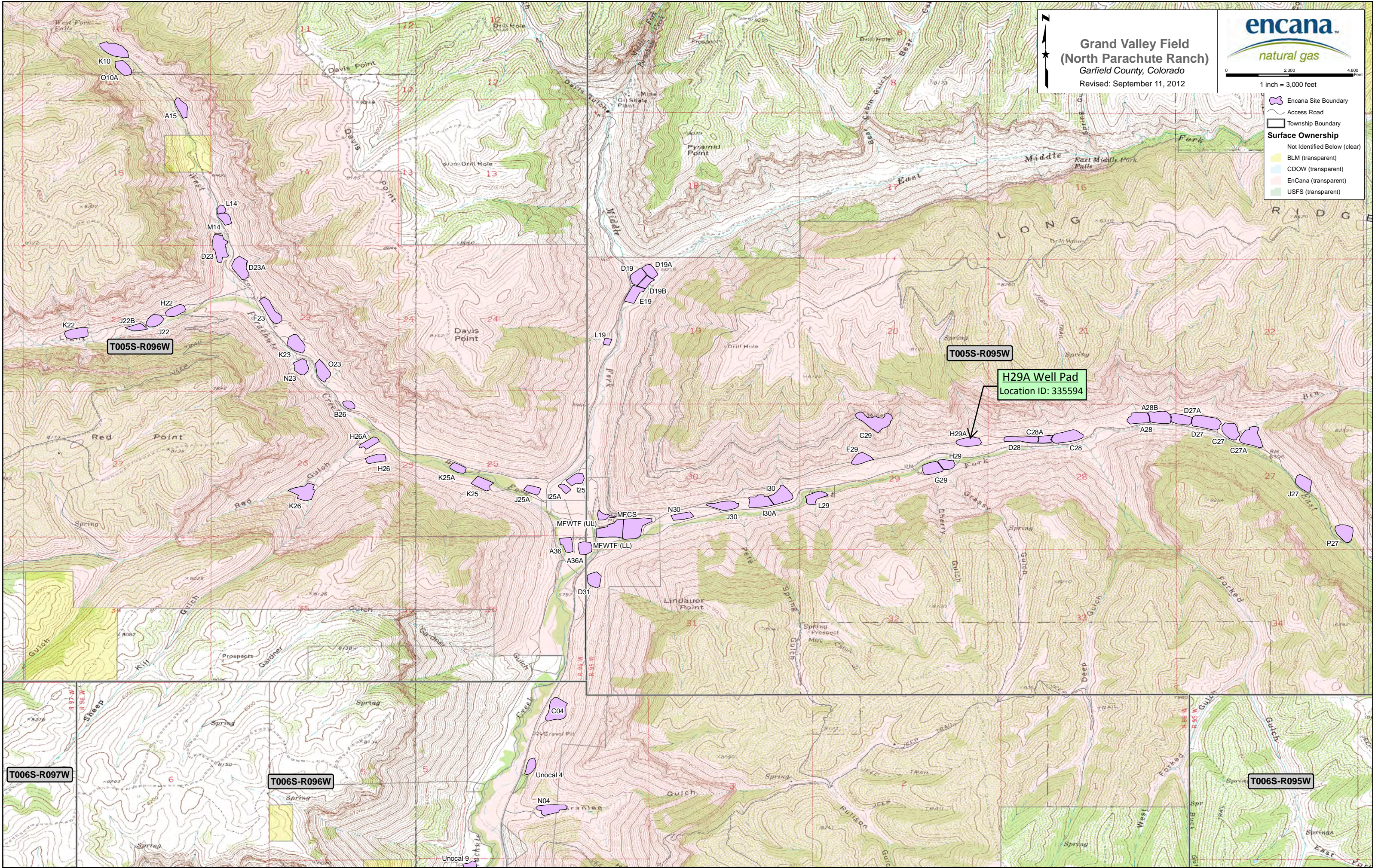
Encana Oil & Gas (USA) Inc. (Encana) is submitting this Form 4 to document pit closure efforts on a well pad in the North Parachute area of operation in Garfield County.

After removal of the pit liner, field observations and a series of discrete grab samples were collected to determine if soil impacts were present. After identification of soil impacts, a Form 19 was submitted to document below-liner impacts. The pit was backfilled, and a soil auger drilling rig was used to identify vertical and lateral extent of soil impacts, and install soil vapor extraction (SVE) wells. These wells are now on a monthly operations and maintenance (O&M) schedule with regular data reviews. When data indicates that an endpoint in the remediation has been achieved, a soil auger rig will be scheduled to collect clearance samples for laboratory analysis. Upon receipt of laboratory results demonstrating completion of the remediation project, a Notification of Completion will be submitted to the COGCC to document project completion and request for closure.

Analytical results are provided in the attached summary table and laboratory reports.

### **ATTACHMENTS**

1. Topographic Location Map
2. Laboratory Results Summary Table
3. Contractor report of remediation system installation and O&M readings to date
4. Laboratory Reports



# Laboratory Results Summary Table

Analytes (BDL = Below Detection Limit; ND = Non Detect)

Allowable Concentration -->				Organic Compounds in Soil (mg/kg [ppm])																	Inorganics in Soil			Metals in Soil (mg/kg [ppm])																
Location	Sample Date:	Sample Matrix	Matrix Notes	TPH (total volatile and extractable petroleum hydrocarbons)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C36) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total	Acenaphthene	Anthracene	Benzo(A)anthracene	Benzo(B)fluoranthene	Benzo(K)fluoranthene	Benzo(A)pyrene	Chrysene	Dibenzo(A,H)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-C,D)pyrene	Naphthalene	Pyrene	EC (<4 mmhos/cm or 2x background)	SAR (calculation)	pH	Arsenic	Barium - EPA Total Barium	Cadmium	Chromium (III)	Chromium (VI)	Copper	Lead (inorganic)	Mercury	Nickel (soluble salts)	Selenium	Silver	Zinc		
H29A	10/22/12	Pit	Center	679.8	9.8	670	0.091	BDL	0.041	0.38	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.22	BDL	0.6	BDL	1.2	26	8.2	26	1900	BDL	17	BDL	27	20	0.47	14	4.2	BDL	50		
H29A	10/22/12	Pit	Ebot	3902	2	3900	0.0032	BDL	BDL	0.022																														
H29A	10/22/12	Pit	Ewall	220	BDL	220	BDL	BDL	BDL	BDL																														
H29A	10/22/12	Pit	Nwall	290	BDL	290	BDL	BDL	BDL	BDL																														
H29A	10/22/12	Pit	SEwall	480	BDL	480	BDL	BDL	BDL	BDL																														
H29A	10/22/12	Pit	Swwall	920	BDL	920	BDL	BDL	BDL	BDL																														
H29A	10/22/12	Pit	Wbot	1200	300	900	0.22	2.3	1.2	9.9																														
H29A	10/22/12	Pit	WWall	20002.3	2.3	20000	BDL	BDL		0.045																														
H29A	02/04/13	Pit	boring 1 [10-10.5']	21		21	BDL																																	
H29A	02/04/13	Pit	boring 1 [15-17.5']	2300		2300	0.012																																	
H29A	02/04/13	Pit	boring 1 [20-22.5']	2100		2100	0.035																																	
H29A	02/04/13	Pit	boring 1 [25-27.5']	1900		1900	0.047																																	
H29A	02/04/13	Pit	boring 1 [30-32.5']	1800		1800	0.044																																	
H29A	02/05/13	Pit	boring 1 [35-37']	102		102	0.046																																	
H29A	02/05/13	Pit	boring 1 [40-42']	1200		1200	0.15																																	
H29A	02/05/13	Pit	boring 1 [45-47']	2000		2000	0.16																																	
H29A	02/05/13	Pit	boring 1 [50-52']	1600		1600	0.16																																	
H29A	02/05/13	Pit	boring 2 [10-12']	83		83	BDL																																	
H29A	02/05/13	Pit	boring 2 [15-17']	310		310	0.021																																	
H29A	02/05/13	Pit	boring 2 [20-22']	660		660	0.035																																	
H29A	02/05/13	Pit	boring 2 [25-26.5']	600		600	0.034																																	
H29A	02/05/13	Pit	boring 2 [30-32']	730		730	0.048																																	
H29A	02/05/13	Pit	boring 2 [35-37']	BDL		BDL	0.024																																	
H29A	02/05/13	Pit	boring 2 [40-42']	12		12	BDL																																	
H29A	02/06/13	Pit	boring 3 [30-32']	4.7		4.7	BDL																																	
H29A	02/06/13	Pit	boring 3 [10-12']	BDL		BDL	BDL																																	
H29A	02/06/13	Pit	boring 3 [15-17']	1300		1300	0.0042																																	
H29A	02/06/13	Pit	boring 3 [20-22']	870		870	BDL																																	
H29A	02/06/13	Pit	boring 3 [25-27']	BDL		BDL	BDL																																	
H29A	02/06/13	Pit	boring 4 [10-12']	28		28	BDL																																	
H29A	02/06/13	Pit	boring 4 [15-17.5']	31		31	BDL																																	
H29A	02/06/13	Pit	boring 4 [20-22']	20		20	BDL																																	
H29A	02/06/13	Pit	boring 4 [25-25.5']	85		85	BDL																																	
H29A	02/06/13	Pit	boring 5 [10-12']	BDL		BDL	BDL																																	
H29A	02/06/13	Pit	boring 5 [15-17']	1900		1900	0.057																																	
H29A	02/06/13	Pit	boring 5 [20-22']	2300		2300	0.063																																	
H29A	02/06/13	Pit	boring 5 [25-27']	1000		1000	0.057																																	
H29A	02/06/13	Pit	boring 5 [30-32']	1300		1300	0.054																																	
H29A	02/06/13	Pit	boring 6 [10-12']	710		710	BDL																																	
H29A	02/06/13	Pit	boring 6 [15-17']	1700		1700	0.012																																	
H29A	02/06/13	Pit	boring 6 [20-22']	1600		1600	0.061																																	

# Laboratory Results Summary Table

Allowable Concentration -->				Organic Compounds in Soil (mg/kg [ppm])																		Inorganics in Soil			Metals in Soil (mg/kg [ppm])													
Location	Sample Date:	Sample Matrix	Matrix Notes	TPH (total volatile and extractable petroleum hydrocarbons)	TPH-GRO (C6-C10) Low Fraction	TPH-DRO (C10-C36) High Fraction	Benzene	Toluene	Ethylbenzene	Xylenes - total	Acenaphthene	Anthracene	Benzo(A)anthracene	Benzo(B)fluoranthene	Benzo(K)fluoranthene	Benzo(A)pyrene	Chrysene	Dibenzo(A,H)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-C,D)pyrene	Naphthalene	Pyrene	EC (<4 mmhos/cm or 2x background)	SAR (calculation)	pH	Arsenic	Barium - EPA Total Barium	Cadmium	Chromium (III)	Chromium (VI)	Copper	Lead (inorganic)	Mercury	Nickel (soluble salts)	Selenium	Silver	Zinc
H29A	02/06/13	Pit	boring 6 [25-27']	540		540	0.12																															
H29A	02/06/13	Pit	boring 6 [30-32']	650		650	0.072																															
H29A	02/07/13	Pit	boring 10 [10-12']	65		65	0.0053																															
H29A	02/07/13	Pit	boring 10 [12-14']	140		140	0.0037																															
H29A	02/07/13	Pit	boring 10 [15-17']	730		730	1.1																															
H29A	02/07/13	Pit	boring 10 [20-22']	550		550	0.021																															
H29A	02/07/13	Pit	boring 7 [10-12']	BDL		BDL	0.0064																															
H29A	02/07/13	Pit	boring 7 [15-17']	870		870	0.019																															
H29A	02/07/13	Pit	boring 7 [20-22']	620		620	0.069																															
H29A	02/07/13	Pit	boring 7 [25-27']	220		220	0.095																															
H29A	02/07/13	Pit	boring 7 [30-32']	500		500	0.082																															
H29A	02/07/13	Pit	boring 8 [10-12']	76		76	0.0049																															
H29A	02/07/13	Pit	boring 8 [12-14']	480		480	BDL																															
H29A	02/07/13	Pit	boring 8 [15-17']	780		780	0.07																															
H29A	02/07/13	Pit	boring 8 [20-22']	600		600	0.088																															
H29A	02/07/13	Pit	boring 9 [10-12']	23		23	0.0064																															
H29A	02/07/13	Pit	boring 9 [12-14']	BDL		BDL	0.016																															
H29A	02/07/13	Pit	boring 9 [15-17']	1300		1300	0.096																															
H29A	02/07/13	Pit	boring 9 [20-22']	720		720	0.086																															
H29A	02/08/13	Pit	boring 11 [10-12']	660		660	BDL																															
H29A	02/08/13	Pit	boring 11 [15-17']	1800		1800	1.8																															
H29A	02/08/13	Pit	boring 11 [20-22']	1600		1600	0.14																															
H29A	04/29/13	Pit	boring 12 [40-42']	BDL		BDL																																
H29A	04/29/13	Pit	boring 12 [60-62']	BDL		BDL																																
H29A	04/30/13	Pit	boring 12 [70-72']	12		12																																
H29A	04/30/13	Pit	boring 13 [30-32']	1400		1400																																
H29A	04/30/13	Pit	boring 13 [45-47']	72		72																																
H29A	04/30/13	Pit	boring 13 [55-57']	69		69																																
H29A	07/16/13	Pit	boring W 01 [30-32']	BDL		BDL	BDL	BDL	BDL	BDL																												
H29A	07/16/13	Pit	boring W 01 [40-42']	27		27	BDL	BDL	BDL	BDL																												
H29A	07/18/13	Pit	boring E 2 [25-27']	960		960	0.085	0.046	0.013	0.16																												
H29A	07/18/13	Pit	boring E 2 [55-57']	12		12	BDL	BDL	BDL	BDL																												
H29A	07/19/13	Pit	boring S 1 [10-12']	BDL		BDL	0.091	BDL	0.12	1.6																												



February 25, 2015

Mr. Chris Hines  
Environmental Specialist  
Encana Oil and Gas, Inc.  
143 Diamond Avenue  
Parachute, Colorado 81635

**RE: Quarterly Remediation Update – 4<sup>th</sup> Quarter 2014  
H29A Pad  
Garfield County, Colorado  
North Parachute Ranch**

Dear Mr. Hines:

LT Environmental, Inc. (LTE), under the direction of Encana Oil and Gas, Inc. (Encana), conducted remedial action activities at the H29A Pad (Site) located within the North Parachute Ranch in Garfield County, Colorado. This correspondence is a summary of the remediation activities completed during the fourth quarter of 2014.

### **Remediation System Description, Operations and Maintenance**

From July 16, 2013 through July 24, 2013, LTE installed 10 passive soil vapor extraction (SVE) wells at depths ranging from 25 to 65 feet below ground surface. Vent turbines were secured to top of each SVE well for the purpose of remediating residual hydrocarbon concentrations. The SVE system is designed to volatilize petroleum constituents adsorbed onto soil particles and promote bio-attenuation of residual hydrocarbons.

On November 9, 2014, active SVE MicroBlowers from Tersus Environmental were installed at SVEW02, SVES02, and SVES01. The MicroBlowers are designed to operate on a 24 volt direct current system, charged via solar panels, and utilizing a 24 hour timer to control run times based on charging needs and potential overheating issues during summer months. Currently the operating schedule allows the blowers to operate for one hour and rest for the following half hour. Adjustments to this schedule will be made as conditions fluctuate at the Site.

Monthly measurements of flow, temperature, and gas concentrations are collected at each SVE well. A Site Diagram (Attachment A) has been included along with a summary of these measurements presented as Table 1. SVE measurements, including all gas concentrations and hours of operation for the active SVE MicroBlowers are presented in Table 2. Attachment B graphically illustrates the gas concentrations of each SVE well.

On November 29, 2014, hydrogen sulfide (H<sub>2</sub>S) was observed at an average concentration of 98 parts per million (ppm) within the exhaust of SVES02. Personal air monitors did not detect H<sub>2</sub>S in the surrounding ambient air. On December 3, 2014, H<sub>2</sub>S was not observed at detectable levels within the exhaust of the well. However, on December 4, 2014, H<sub>2</sub>S was observed within the



exhaust of SVES02 at a concentration of 282 ppm. Personal air monitors did not detect H<sub>2</sub>S in the surrounding ambient air but the well was immediately shut in and the Site was vacated. Under the direction of Encana, the well remained shut in through the remainder of the quarter.

LTE adopted an updated health and safety plan requiring workers onsite to carry an escape breathing apparatus and to not be on the Site alone until the potential for H<sub>2</sub>S exposure could be verified.

### **Summary and Conclusions**

LTE, under the direction of Encana, will continue to operate and maintain the SVE system while maximizing the potential run times of the blowers. Current gas concentrations are similar to previously observed concentrations across the Site. As gas concentrations stabilize, LTE will evaluate conditions with the goal of obtaining analytical results in compliance with applicable COGCC Table 910-1 allowable concentrations standards.

LTE will continue to monitor H<sub>2</sub>S at well SVES02. There have been no other detectable concentrations of H<sub>2</sub>S at the Site in any other monitoring points.

LTE appreciates the opportunity to provide environmental services to Encana. Please call us at 970-285-9985 if you have any questions or comments regarding this report.

Sincerely,

LT ENVIRONMENTAL, INC.

A handwritten signature in blue ink, appearing to read 'Chris McKisson'.

Chris McKisson  
Project Manager

A handwritten signature in blue ink, appearing to read 'Gavin Casson'.

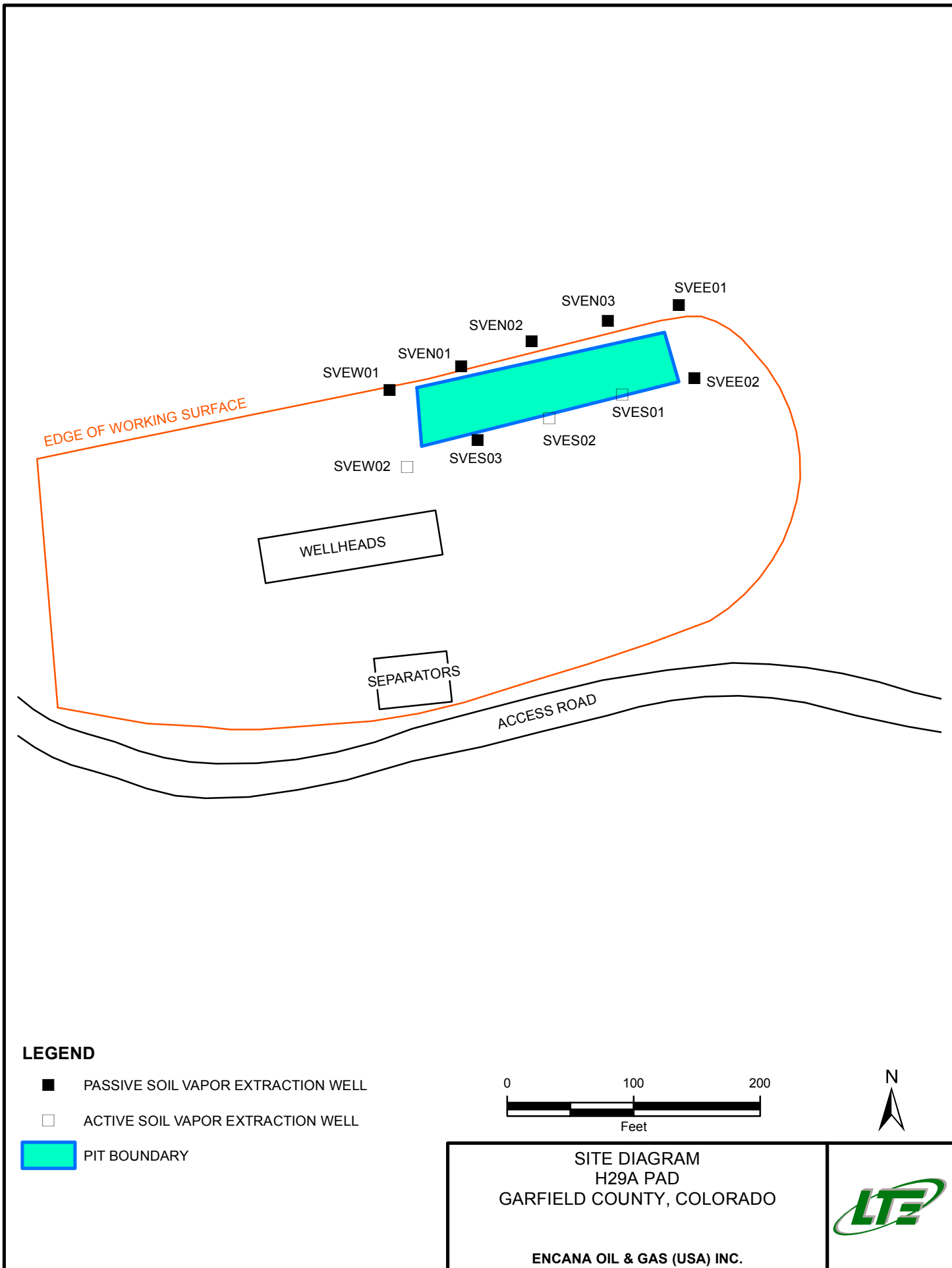
Gavin Casson, E.I.T.  
Staff Engineer

### **Attachments**

Attachment A:	Site Diagram
Attachment B:	Gas Concentration Graphs
Table 1:	SVE Operation and Maintenance Field Parameters
Table 2:	Active SVE Operation and Maintenance Field Parameters

**ATTACHMENT A**  
**SITE DIAGRAM**



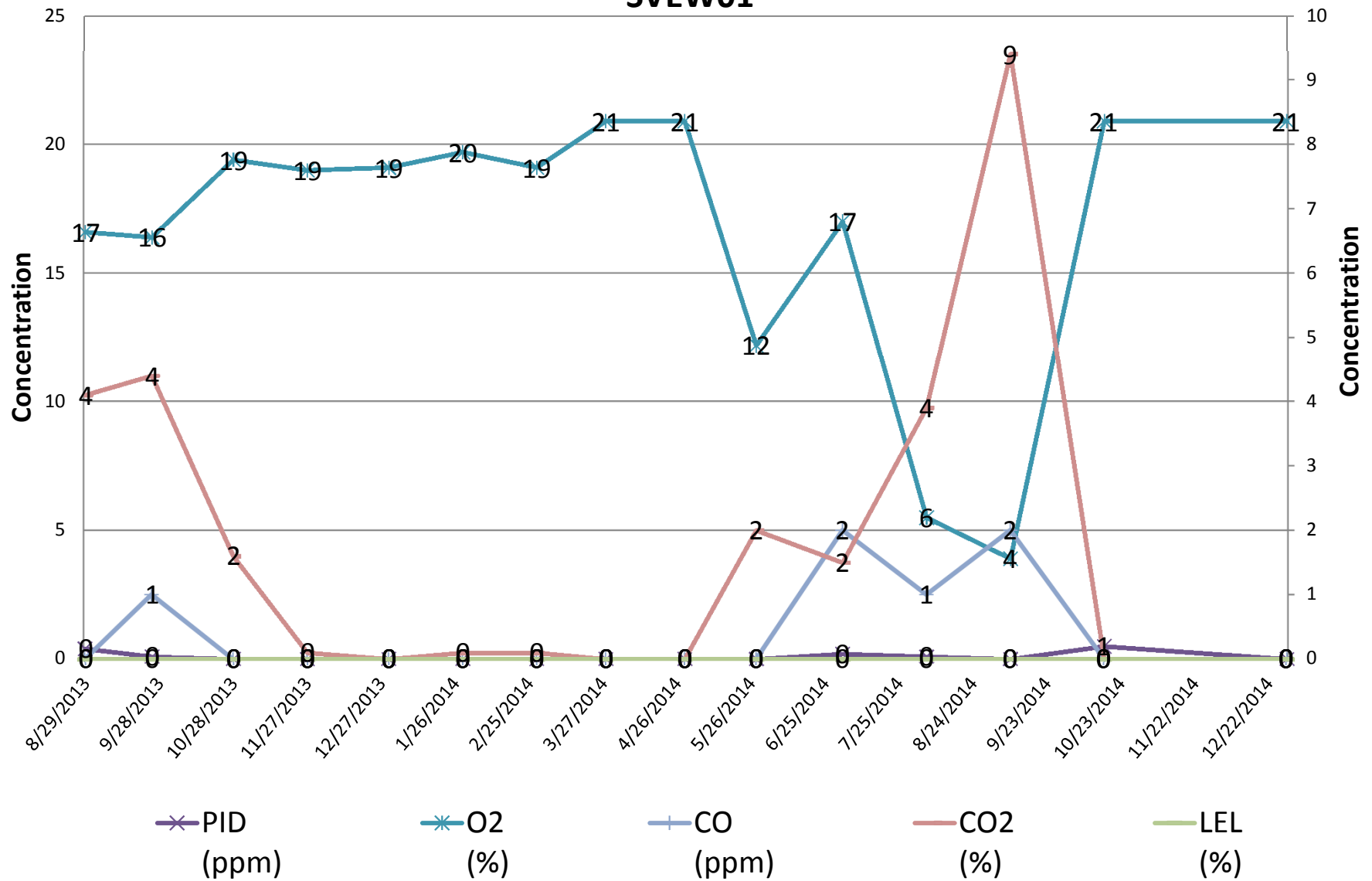


**ATTACHMENT B**  
**GAS CONCENTRATION GRAPHS**



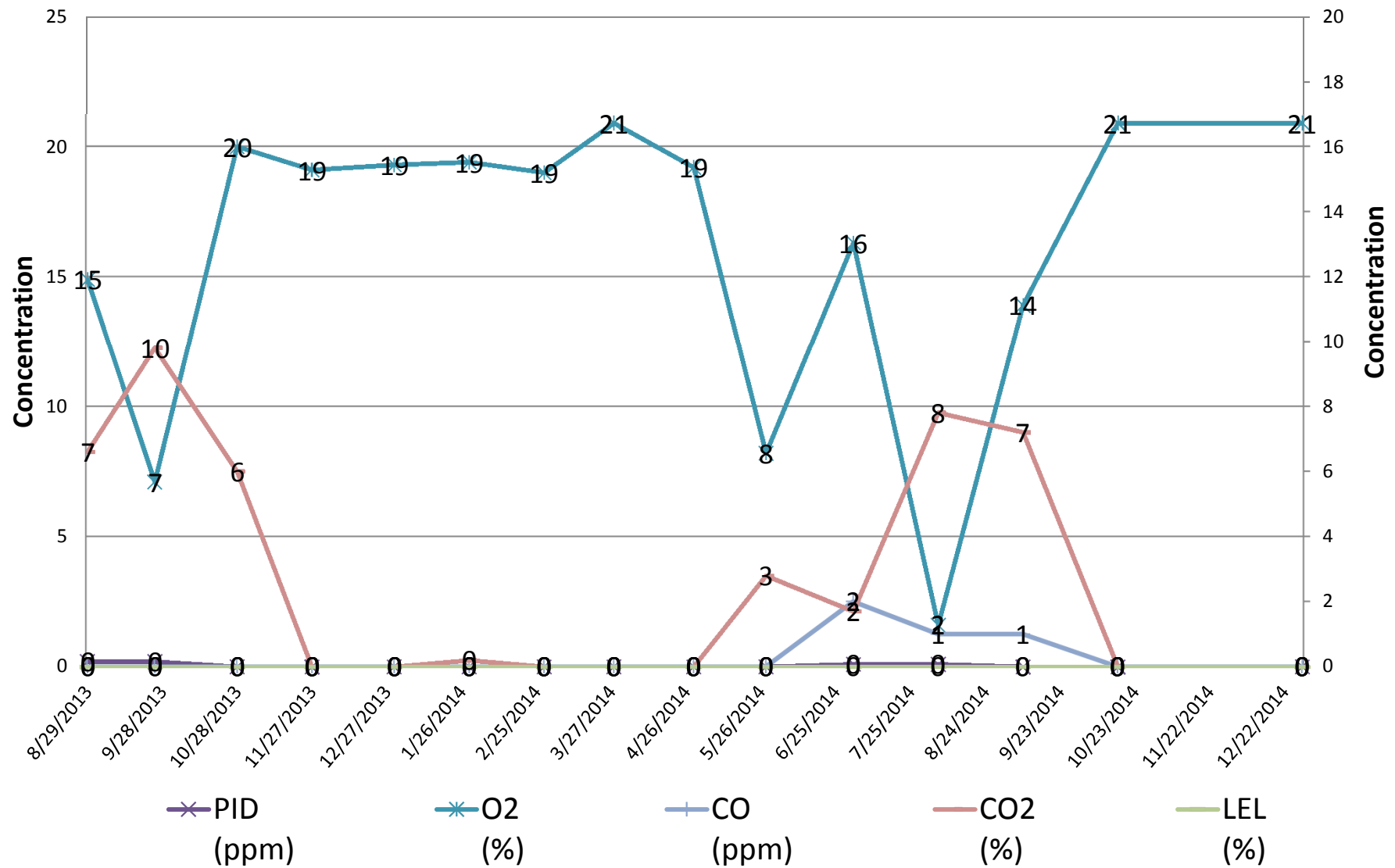
# ENCANA H29A PAD SVEW01

Assessed TPH: 1,800 mg/kg



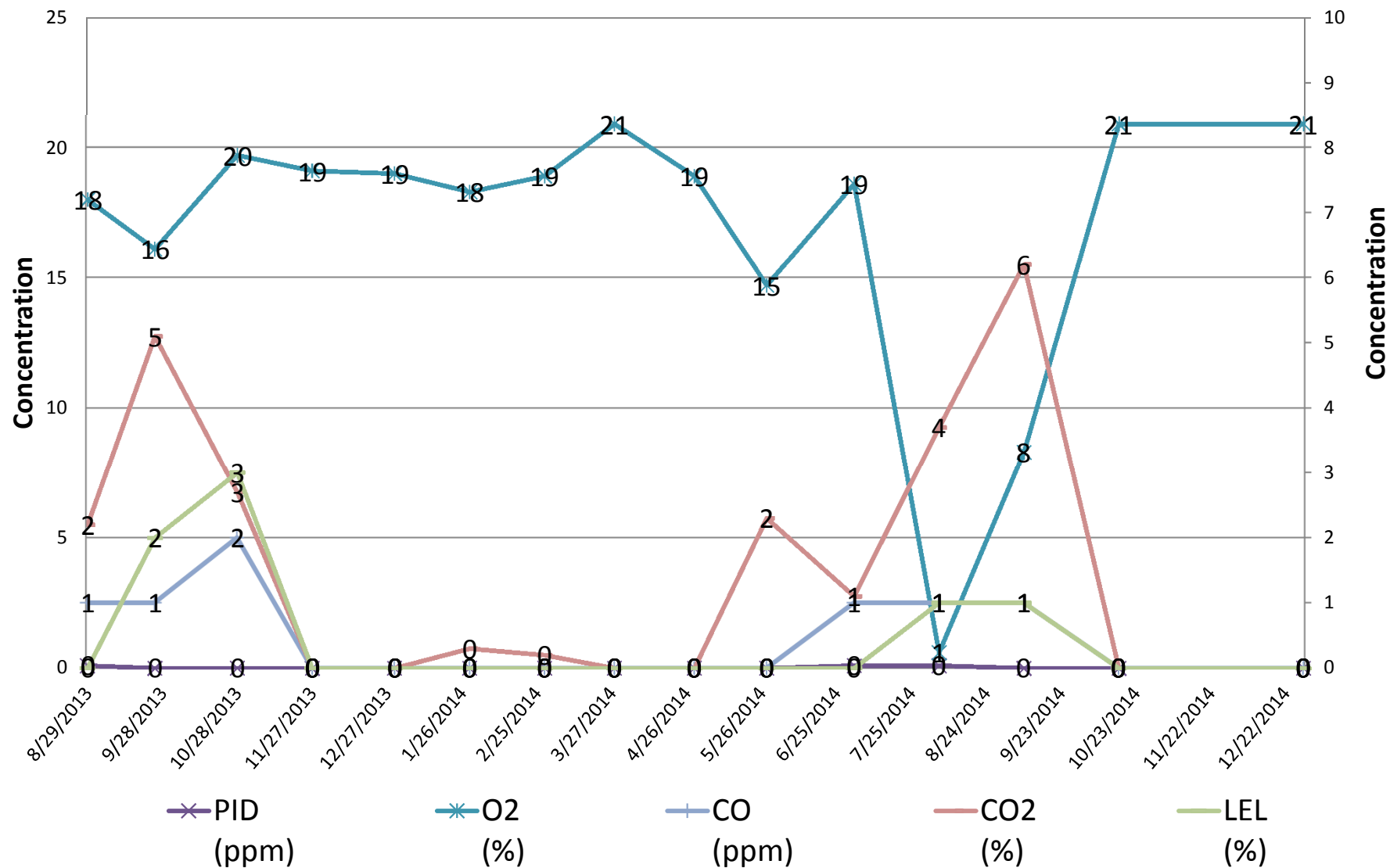
# ENCANA H29A PAD SVEN01

Assessed TPH: 85 mg/kg



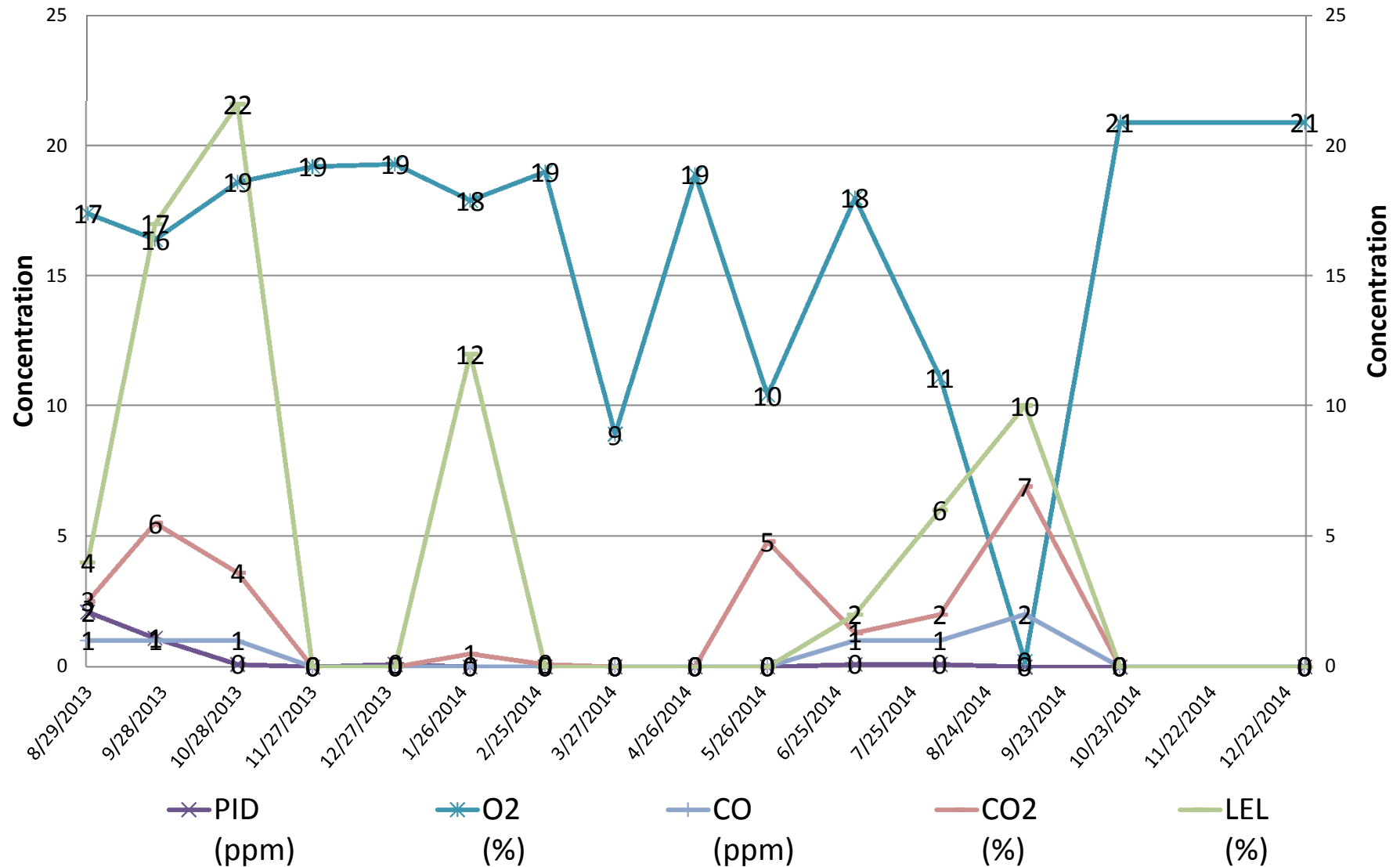
# ENCANA H29A PAD SVEN02

Assessed TPH: 730 mg/kg



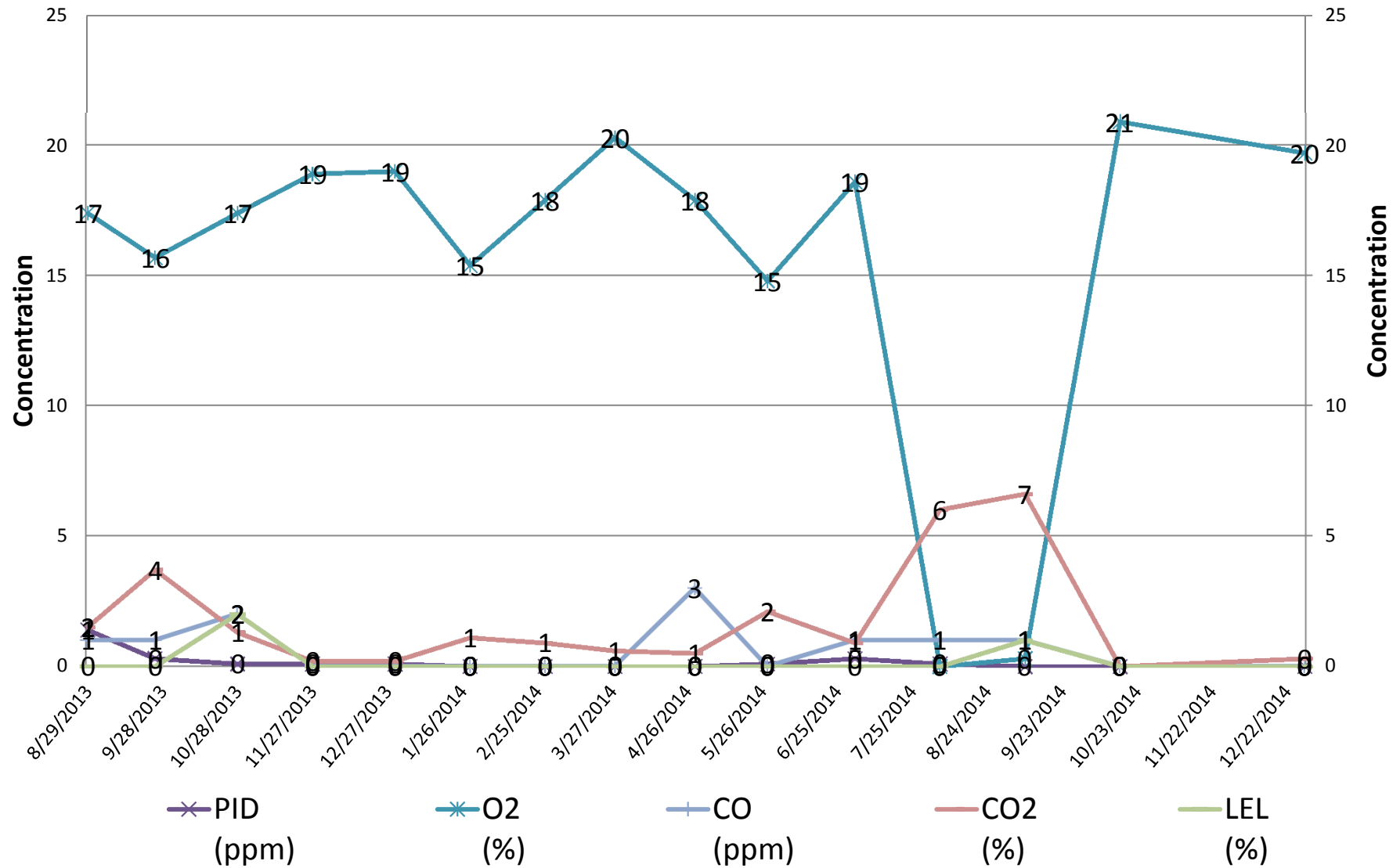
# ENCANA H29A PAD SVEN03

Assessed TPH: 1,300 mg/kg



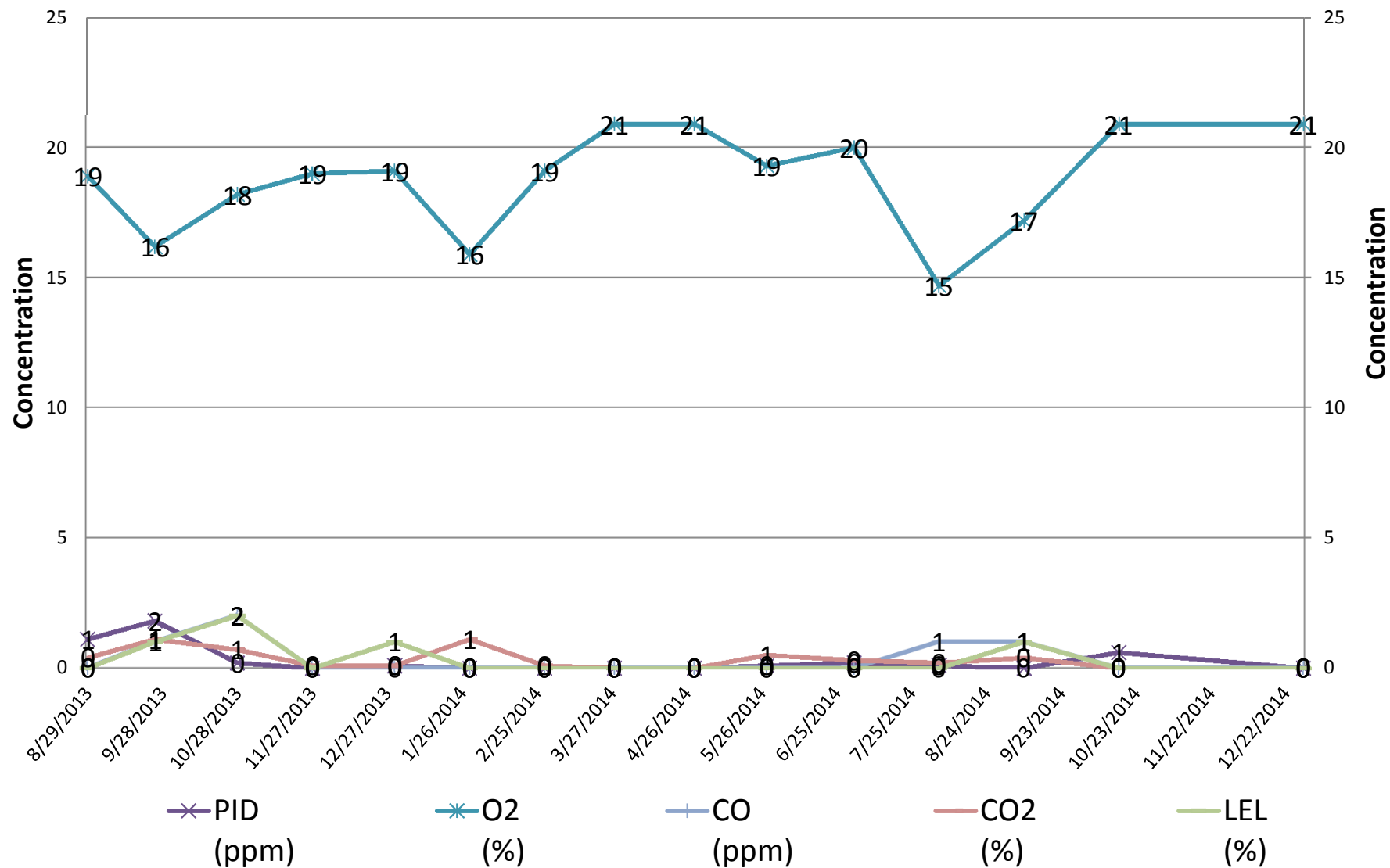
# ENCANA H29A PAD SVEE01

Assessed TPH: 1,400 mg/kg



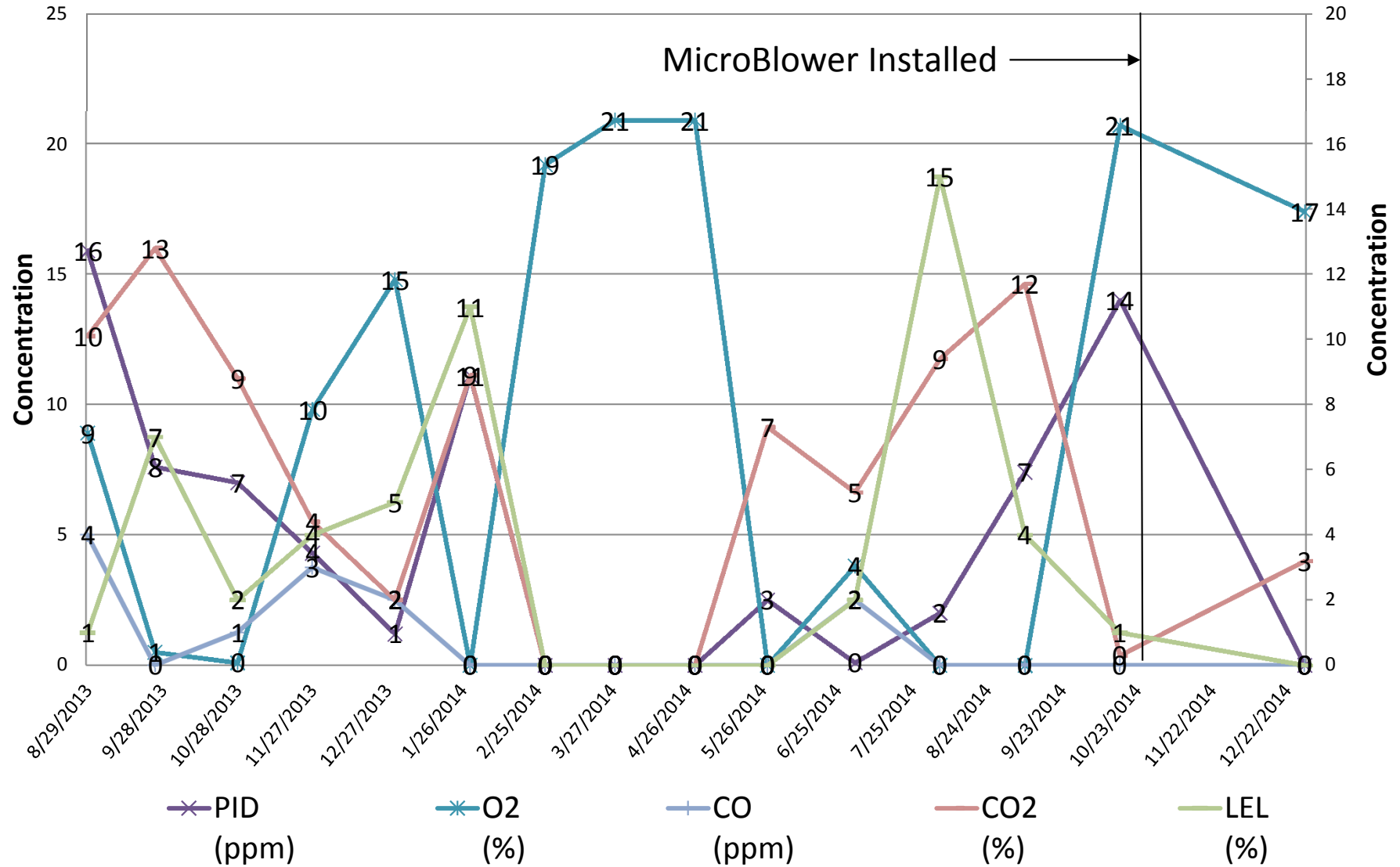
# ENCANA H29A PAD SVEE02

Assessed TPH: 2,300 mg/kg



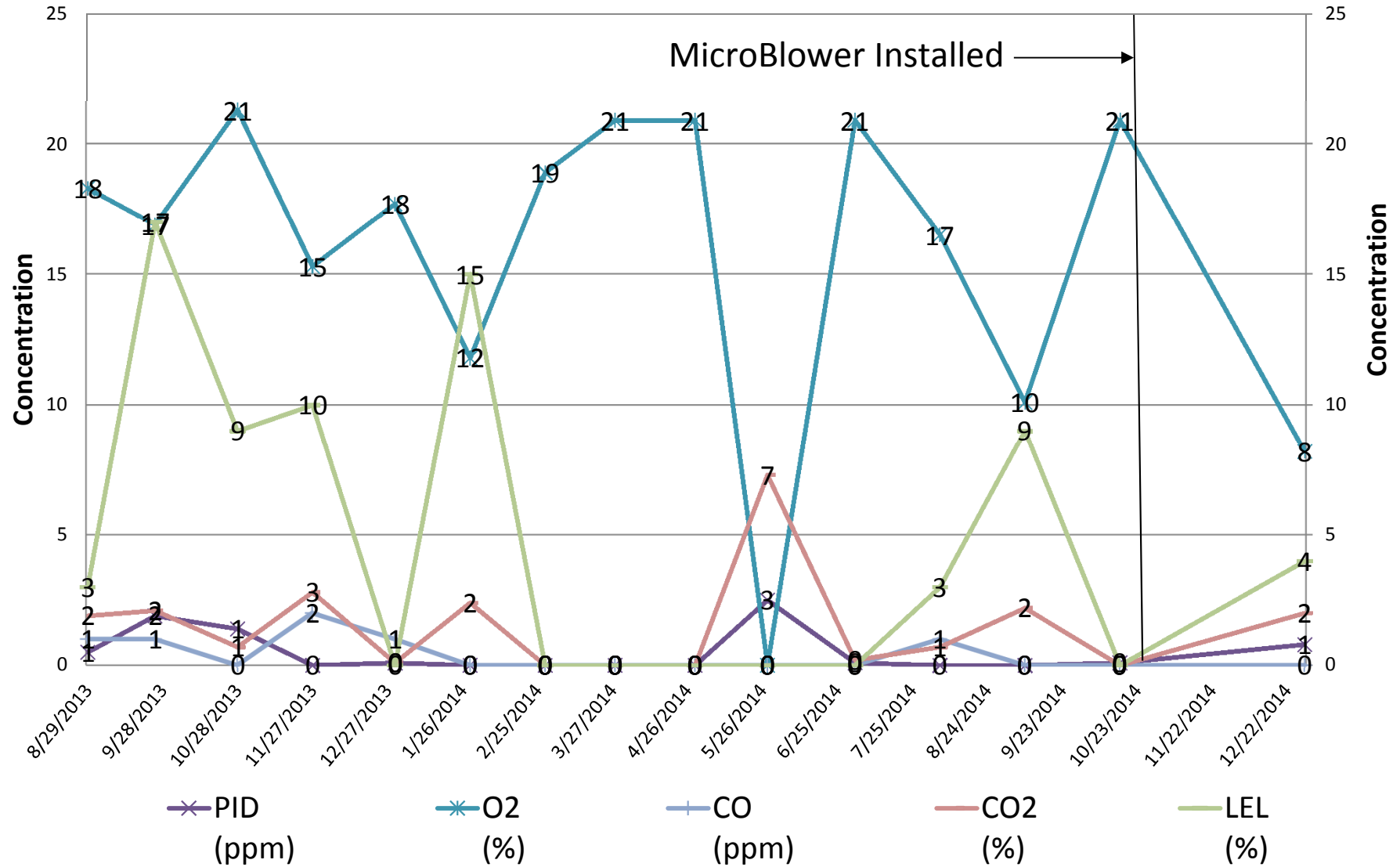
# ENCANA H29A PAD SVES01

Assessed TPH: 2,300 mg/kg



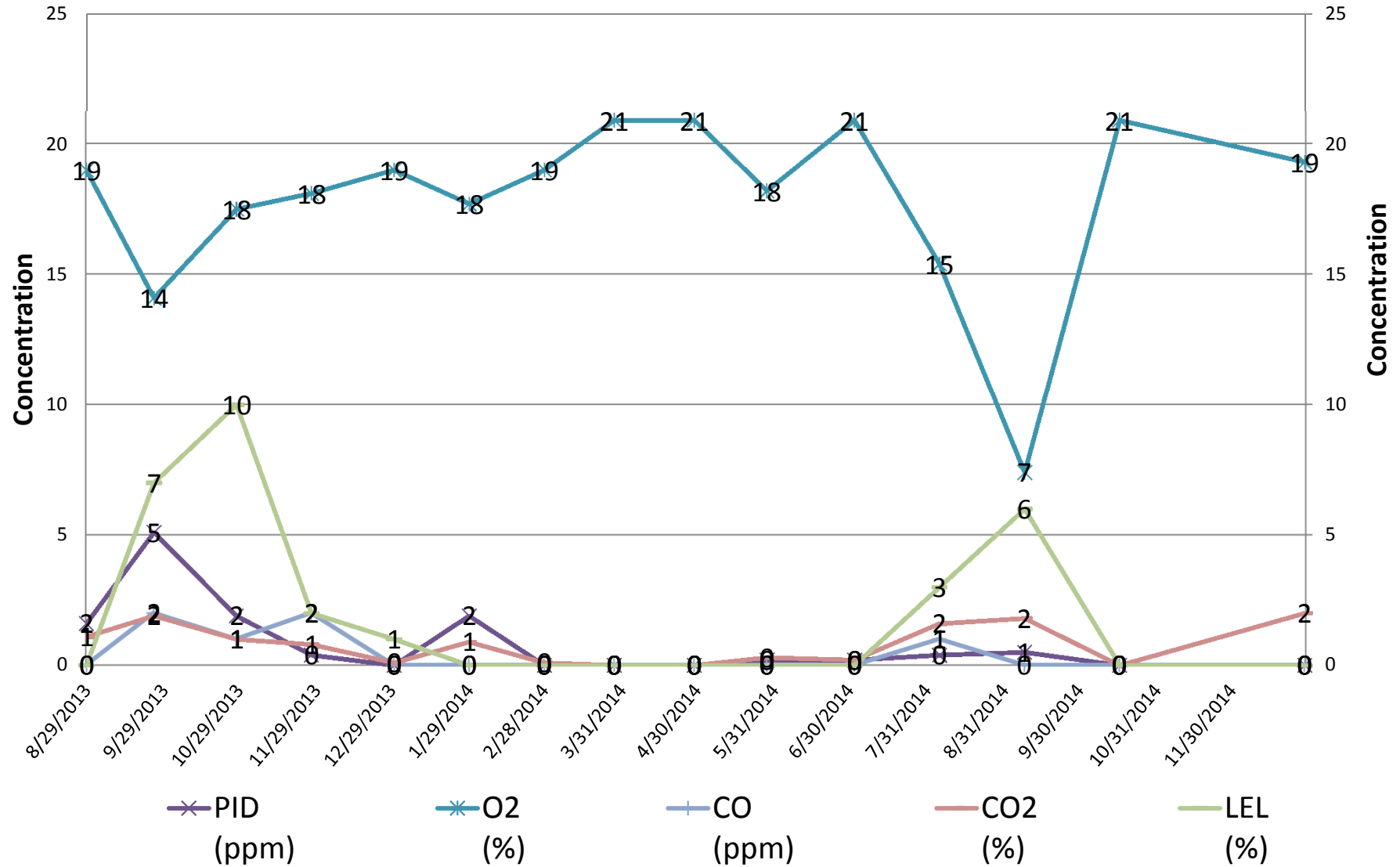
# ENCANA H29A PAD SVES02

Assessed TPH: 1,700 mg/kg



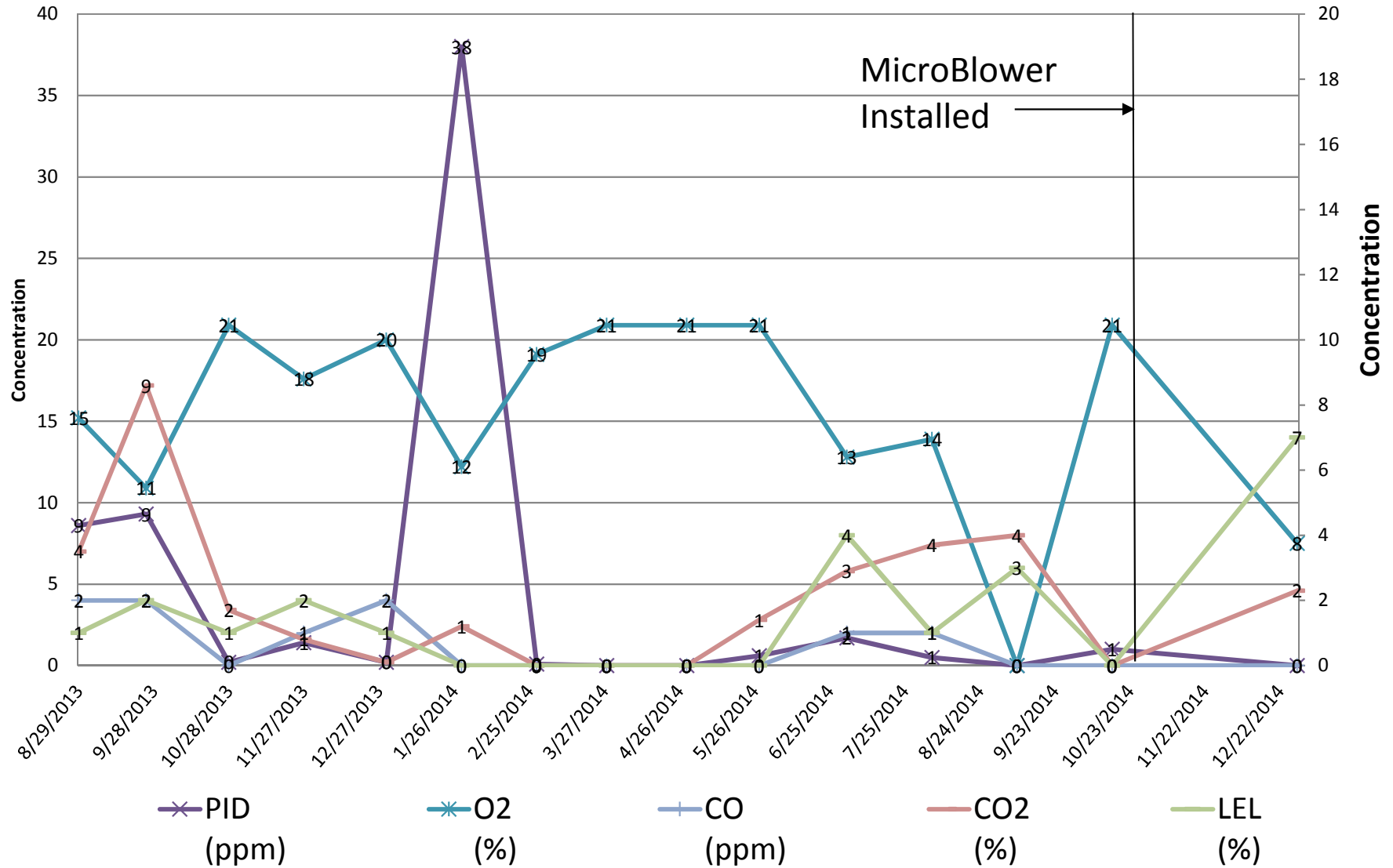
# ENCANA H29A PAD SVES03

Assessed TPH: 870 mg/kg



# ENCANA H29A PAD SVEW02

Assessed TPH: 1,800 mg/kg



## TABLES

**TABLE 1**  
**SVE OPERATION AND MAINTENANCE FIELD PARAMETERS**  
**H29A WELL PAD**  
**ENCANA OIL AND GAS (USA) INC.**  
**GARFIELD COUNTY, COLORADO**

Well ID	Date	Velocity (fpm)	Flow (cfm)	Temperature (°F)	PID (ppm)	O <sub>2</sub> (%)	H <sub>2</sub> S (ppm)	CO (ppm)	CO <sub>2</sub> (%)	LEL (%)
SVEW01	8/29/2013	26	0.53	101.2	0.4	16.6	0.0	0.0	4.1	0.0
	9/25/2013	62	1.37	86.4	0.1	16.4	0.0	1.0	4.4	0.0
	10/28/2013	46	0.39	67.0	0.0	19.4	0.0	0.0	1.6	0.0
	11/27/2013	3	0.11	35.1	0.0	19.0	0.0	0.0	0.1	0.0
	12/30/2013	1	0.02	44.9	0.0	19.1	0.0	0.0	0.0	0.0
	1/29/2014	1	0.02	37.9	0.0	19.7	0.0	0.0	0.1	0.0
	2/28/2014	89	2.05	47.9	0.0	19.1	0.0	0.0	0.1	0.0
	3/28/2014	54	0.91	59.2	0.0	20.9	0.0	0.0	0.0	0.0
	4/29/2014	32	0.61	41.7	0.0	20.9	0.0	0.0	0.0	0.0
	5/28/2014	33	0.72	93.7	0.0	12.2	0.0	0.0	2.0	0.0
	7/2/2014	31	0.75	92.3	0.2	17.0	0.0	2.0	1.5	0.0
	8/5/2014	28	0.61	88.5	0.1	5.5	0.0	1.0	3.9	0.0
	9/8/2014	30	0.68	80.1	0.0	3.9	0.0	2.0	9.4	0.0
	10/16/2014	10	0.18	76.2	0.5	20.9	0.0	0.0	0.0	0.0
	12/29/2014	0	0.00	31.1	0.0	20.9	0.0	0.0	0.0	0.0
SVEN01	8/29/2013	46	0.85	99.4	0.2	14.9	0.0	0.0	6.6	0.0
	9/25/2013	51	1.16	85.8	0.2	7.1	0.0	0.0	9.8	0.0
	10/28/2013	27	0.61	68.1	0.0	20.0	0.0	0.0	6.0	0.0
	11/27/2013	15	0.31	29.3	0.0	19.1	0.0	0.0	0.0	0.0
	12/30/2013	1	0.02	48.2	0.0	19.3	0.0	0.0	0.0	0.0
	1/29/2014	0	0.00	38.0	0.0	19.4	0.0	0.0	0.2	0.0
	2/28/2014	83	1.97	48.7	0.0	19.0	0.0	0.0	0.0	0.0
	3/28/2014	61	1.44	61.2	0.0	20.9	0.0	0.0	0.0	0.0
	4/29/2014	31	0.65	43.7	0.0	19.2	0.0	0.0	0.0	0.0
	5/28/2014	23	0.31	92.9	0.0	8.2	0.0	0.0	2.8	0.0
	7/2/2014	20	0.50	93.7	0.1	16.3	0.0	2.0	1.7	0.0
	8/5/2014	3	0.02	85.9	0.1	1.6	0.0	1.0	7.8	0.0
	9/8/2014	12	0.13	80.3	0.0	13.9	0.0	1.0	7.2	0.0
	10/16/2014	14	0.13	72.9	0.0	20.9	0.0	0.0	0.0	0.0
	12/29/2014	0	0.00	32.1	0.0	20.9	0.0	0.0	0.0	0.0
SVEN02	8/29/2013	3	0.11	99.6	0.1	18.0	0.0	1.0	2.2	0.0
	9/25/2013	23	0.68	82.0	0.0	16.1	0.0	1.0	5.1	2.0
	10/28/2013	41	0.66	65.5	0.0	19.7	0.0	2.0	2.7	3.0
	11/27/2013	18	0.31	28.5	0.0	19.1	0.0	0.0	0.0	0.0
	12/30/2013	1	0.02	51.7	0.0	19.0	0.0	0.0	0.0	0.0
	1/29/2014	0	0.00	37.9	0.0	18.3	0.0	0.0	0.3	0.0
	2/28/2014	72	1.89	47.8	0.0	18.9	0.0	0.0	0.2	0.0
	3/28/2014	1	0.02	59.2	0.0	20.9	0.0	0.0	0.0	0.0
	4/29/2014	25	0.60	44.9	0.0	18.9	0.0	0.0	0.0	0.0
	5/28/2014	32	0.72	93.4	0.0	14.7	0.0	0.0	2.3	0.0
	7/2/2014	25	0.53	98.2	0.1	18.6	0.0	1.0	1.1	0.0
	8/5/2014	26	0.59	83.8	0.1	0.6	0.0	1.0	3.7	1.0
	9/8/2014	47	1.07	81.2	0.0	8.3	0.0	1.0	6.2	1.0
	10/16/2014	13	0.13	71.3	0.0	20.9	0.0	0.0	0.0	0.0
	12/29/2014	0	0.00	35.2	0.0	20.9	0.0	0.0	0.0	0.0



**TABLE 1**  
**SVE OPERATION AND MAINTENANCE FIELD PARAMETERS**  
**H29A WELL PAD**  
**ENCANA OIL AND GAS (USA) INC.**  
**GARFIELD COUNTY, COLORADO**

Well ID	Date	Velocity (fpm)	Flow (cfm)	Temperature (°F)	PID (ppm)	O <sub>2</sub> (%)	H <sub>2</sub> S (ppm)	CO (ppm)	CO <sub>2</sub> (%)	LEL (%)
SVEN03	8/29/2013	1	0.04	99.3	2.1	17.4	0.0	1.0	2.5	4.0
	9/25/2013	5	0.07	84.8	1.1	16.4	0.0	1.0	5.5	17.0
	10/28/2013	24	0.64	68.7	0.1	18.6	0.0	1.0	3.6	21.6
	11/27/2013	7	0.09	35.7	0.0	19.2	0.0	0.0	0.0	0.0
	12/30/2013	2	0.13	47.6	0.1	19.3	0.0	0.0	0.0	0.0
	1/29/2014	0	0.00	37.0	0.0	17.9	0.0	0.0	0.5	12.0
	2/28/2014	96	2.05	47.9	0.0	19.0	0.0	0.0	0.1	0.0
	3/28/2014	1	0.02	58.5	0.0	8.9	0.0	0.0	0.0	0.0
	4/29/2014	14	0.32	40.2	0.0	18.9	0.0	0.0	0.0	0.0
	5/28/2014	2	0.02	94.6	0.0	10.4	0.0	0.0	4.8	0.0
	7/2/2014	5	0.11	97.3	0.1	18.0	0.0	1.0	1.3	2.0
	8/5/2014	2	0.02	85.1	0.1	11.1	0.0	1.0	2.0	6.0
	9/8/2014	2	0.04	77.4	0.0	0.2	0.0	2.0	6.9	10.0
	10/16/2014	22	0.50	76.9	0.0	20.9	0.0	0.0	0.0	0.0
	12/29/2014	0	0.00	31.9	0.0	20.9	0.0	0.0	0.0	0.0
SVEE01	8/29/2013	1	0.02	97.7	1.4	17.4	0.0	1.0	1.5	0.0
	9/25/2013	65	1.46	82.6	0.3	15.7	0.0	1.0	3.7	0.0
	10/28/2013	44	1.44	69.0	0.1	17.4	0.0	2.0	1.3	2.0
	11/27/2013	17	0.35	30.8	0.1	18.9	0.0	0.0	0.2	0.0
	12/30/2013	4	0.04	44.9	0.1	19.0	0.0	0.0	0.2	0.0
	1/29/2014	0	0.00	37.2	0.0	15.4	0.0	0.0	1.1	0.0
	2/28/2014	89	1.97	48.7	0.0	17.9	0.0	0.0	0.9	0.0
	3/28/2014	8	0.04	59.4	0.0	20.3	0.0	0.0	0.6	0.0
	4/29/2014	32	0.68	42.9	0.0	17.9	0.0	3.0	0.5	0.0
	5/28/2014	10	0.46	92.1	0.1	14.8	0.0	0.0	2.1	0.0
	7/2/2014	55	0.89	98.7	0.3	18.6	0.0	1.0	0.9	0.0
	8/5/2014	22	0.50	86.5	0.1	0.0	0.0	1.0	6.0	0.0
	9/8/2014	40	0.79	82.2	0.0	0.3	0.0	1.0	6.6	1.0
	10/16/2014	20	0.44	77.9	0.0	20.9	0.0	0.0	0.0	0.0
	12/29/2014	0	0.00	35.4	0.0	19.7	0.0	0.0	0.3	0.0
SVEE02	8/29/2013	1	0.04	101.4	1.1	18.9	0.0	0.0	0.4	0.0
	9/25/2013	53	1.18	81.3	1.8	16.2	0.0	1.0	1.1	1.0
	10/28/2013	24	0.13	63.6	0.2	18.2	0.0	2.0	0.7	2.0
	11/27/2013	19	0.06	40.6	0.0	19.0	0.0	0.0	0.1	0.0
	12/30/2013	3	0.02	46.5	0.1	19.1	0.0	0.0	0.1	1.0
	1/29/2014	0	0.00	36.4	0.0	15.9	0.0	0.0	1.1	0.0
	2/28/2014	92	2.00	49.7	0.0	19.1	0.0	0.0	0.1	0.0
	3/28/2014	20	0.66	61.1	0.0	20.9	0.0	0.0	0.0	0.0
	4/29/2014	44	0.39	41.7	0.0	20.9	0.0	0.0	0.0	0.0
	5/28/2014	10	0.44	93.9	0.1	19.3	0.0	0.0	0.5	0.0
	7/2/2014	24	0.59	97.5	0.2	20.0	0.0	0.0	0.3	0.0
	8/5/2014	4	0.11	86.5	0.1	14.7	0.0	1.0	0.2	0.0
	9/8/2014	13	0.24	82.8	0.0	17.2	0.0	1.0	0.4	1.0
	10/16/2014	11	0.13	76.1	0.6	20.9	0.0	0.0	0.0	0.0
	12/29/2014	0	0.00	36.6	0.0	20.9	0.0	0.0	0.0	0.0



**TABLE 1**  
**SVE OPERATION AND MAINTENANCE FIELD PARAMETERS**  
**H29A WELL PAD**  
**ENCANA OIL AND GAS (USA) INC.**  
**GARFIELD COUNTY, COLORADO**

Well ID	Date	Velocity (fpm)	Flow (cfm)	Temperature (°F)	PID (ppm)	O <sub>2</sub> (%)	H <sub>2</sub> S (ppm)	CO (ppm)	CO <sub>2</sub> (%)	LEL (%)
SVES01	8/29/2013	16	0.21	97.1	15.9	8.9	0.0	4.0	10.1	1.0
	9/25/2013	50	1.07	76.4	7.6	0.5	0.0	0.0	12.8	7.0
	10/28/2013	65	0.79	67.0	7.0	0.1	0.0	1.0	8.8	2.0
	11/27/2013	32	0.64	30.5	4.3	9.8	0.0	3.0	4.4	4.0
	12/30/2013	18	0.35	42.6	1.2	14.8	0.0	2.0	2.0	5.0
	1/29/2014	0	0.00	37.7	11.1	0.0	0.0	0.0	8.9	11.0
	2/28/2014	85	2.04	47.9	0.0	19.2	0.0	0.0	0.0	0.0
	3/28/2014	29	0.60	54.8	0.0	20.9	0.0	0.0	0.0	0.0
	4/29/2014	30	0.43	42.1	0.0	20.9	0.0	0.0	0.0	0.0
	5/28/2014	28	0.55	90.7	2.5	0.0	0.0	0.0	7.3	0.0
	7/2/2014	25	0.53	95.3	0.1	3.8	0.0	2.0	5.3	2.0
	8/5/2014	9	0.18	85.9	2.0	0.0	0.0	0.0	9.4	15.0
	9/8/2014	18	0.26	78.6	7.4	0.0	0.0	0.0	11.7	4.0
	10/16/2014	4	0.06	73.2	14.0	20.7	0.0	0.0	0.3	1.0
	12/29/2014	218	5.15	35.2	0.0	17.4	0.0	0.0	3.2	0.0
SVES02	8/29/2013	28	0.59	98.7	0.5	18.3	0.0	1.0	1.9	3.0
	9/25/2013	88	1.68	79.8	1.9	16.9	0.0	1.0	2.1	17.0
	10/28/2013	51	0.90	63.7	1.4	21.3	0.0	0.0	0.7	9.0
	11/27/2013	19	0.39	34.4	0.0	15.3	0.0	2.0	2.8	10.0
	12/30/2013	2	0.09	46.6	0.1	17.7	0.0	1.0	0.1	0.0
	1/29/2014	0	0.00	37.6	0.0	11.8	0.0	0.0	2.4	15.0
	2/28/2014	73	1.93	48.2	0.0	18.9	0.0	0.0	0.0	0.0
	3/28/2014	29	0.44	60.5	0.0	20.9	0.0	0.0	0.0	0.0
	4/29/2014	31	0.61	44.7	0.0	20.9	0.0	0.0	0.0	0.0
	5/28/2014	25	0.05	90.7	2.5	0.0	0.0	0.0	7.3	0.0
	7/2/2014	27	0.53	97.8	0.1	20.9	0.0	0.0	0.2	0.0
	8/5/2014	27	0.45	85.4	0.0	16.5	0.0	1.0	0.7	3.0
	9/8/2014	15	0.50	80.1	0.0	10.1	0.0	0.0	2.2	9.0
	10/16/2014	7	0.11	75.6	0.1	20.9	0.0	0.0	0.0	0.0
	12/29/2014	0	0.00	37.4	0.8	8.2	0.0	0.0	2.0	4.0
SVES03	8/29/2013	13	0.20	99.7	1.6	19.0	0.0	0.0	1.1	0.0
	9/25/2013	29	0.74	81.8	5.1	14.1	0.0	2.0	1.9	7.0
	10/28/2013	31	0.61	66.9	1.9	17.5	0.0	1.0	1.0	10.0
	11/27/2013	29	0.66	30.7	0.4	18.1	0.0	2.0	0.8	2.0
	12/30/2013	3	0.53	44.1	0.0	19.0	0.0	0.0	0.1	1.0
	1/29/2014	0	0.00	42.7	1.9	17.7	0.0	0.0	0.9	0.0
	2/28/2014	97	2.03	48.5	0.0	19.0	0.0	0.0	0.1	0.0
	3/28/2013	2	0.02	61.6	0.0	20.9	0.0	0.0	0.0	0.0
	4/29/2014	31	0.60	43.6	0.0	20.9	0.0	0.0	0.0	0.0
	5/28/2014	30	0.83	90.2	0.2	18.2	0.0	0.0	0.3	0.0
	7/2/2014	23	0.53	98.3	0.2	20.9	0.0	0.0	0.2	0.0
	8/5/2014	24	0.48	83.8	0.4	15.4	0.0	1.0	1.6	3.0
	9/8/2014	26	0.53	79.4	0.5	7.4	0.0	0.0	1.8	6.0
	10/16/2014	1	0.02	75.3	0.0	20.9	0.0	0.0	0.0	0.0
	12/29/2014	0	0.00	38.4	0.0	19.3	0.0	0.0	2.0	0.0



**TABLE 1**  
**SVE OPERATION AND MAINTENANCE FIELD PARAMETERS**  
**H29A WELL PAD**  
**ENCANA OIL AND GAS (USA) INC.**  
**GARFIELD COUNTY, COLORADO**

Well ID	Date	Velocity (fpm)	Flow (cfm)	Temperature (°F)	PID (ppm)	O <sub>2</sub> (%)	H <sub>2</sub> S (ppm)	CO (ppm)	CO <sub>2</sub> (%)	LEL (%)
SVEW02	8/29/2013	7	0.21	97.7	8.6	15.2	0.0	2.0	3.5	1.0
	9/25/2013	46	0.81	80.2	9.3	10.9	0.0	2.0	8.6	2.0
	10/28/2013	22	0.61	69.9	0.2	20.9	0.0	0.0	1.7	1.0
	11/27/2013	35	0.53	34.7	1.4	17.6	0.0	1.0	0.8	2.0
	12/30/2013	2	0.02	47.3	0.2	20.0	0.0	2.0	0.1	1.0
	1/29/2014	0	0.00	43.6	38.0	12.2	0.0	0.0	1.2	0.0
	2/28/2014	79	1.92	48.7	0.1	19.1	0.0	0.0	0.0	0.0
	3/28/2014	3	0.02	63.8	0.0	20.9	0.0	0.0	0.0	0.0
	4/29/2014	29	0.44	44.9	0.0	20.9	0.0	0.0	0.0	0.0
	5/28/2014	95	1.81	95.8	0.6	20.9	0.0	0.0	1.4	0.0
	7/2/2014	34	0.66	93.2	1.7	12.8	0.0	1.0	2.9	4.0
	8/5/2014	90	2.14	85.7	0.5	13.9	0.0	1.0	3.7	1.0
	9/8/2014	83	1.48	82.9	0.0	0.0	0.0	0.0	4.0	3.0
	10/16/2014	12	0.13	73.1	1.0	20.9	0.0	0.0	0.0	0.0
	12/29/2014	194	3.10	33.3	0.0	7.5	0.0	0.0	2.3	7.0

Notes:

fpm - feet per minute  
cfm - cubic feet per minute  
PID - photoionization detector  
ppm - parts per million  
O<sub>2</sub> - oxygen  
H<sub>2</sub>S - hydrogen sulfide

CO - carbon monoxide  
CO<sub>2</sub> - carbon dioxide  
CH<sub>4</sub> - methane  
°F - degrees Fahrenheit  
> - greater than  
mg/kg - milligrams per kilogram

Range of Spoil Samples exceeding the COGCC TPH standard of 500 mg/kg

Sample ID	Date	TPH (mg/kg)
SVEE02	8/29/2013	2,300
SVEN02	8/29/2013	730



**TABLE 2**  
**ACTIVE SVE OPERATION AND MAINTENANCE FIELD PARAMETERS**  
**H29A WELL PAD**  
**ENCANA OIL AND GAS (USA) INC.**  
**GARFIELD COUNTY, COLORADO**

Well ID	Date	Time	Hours	Vaccum (in H2O)	Velocity (fpm)	Flow (cfm)	Temperature (°F)	PID (ppm)	O <sub>2</sub> (%)	H <sub>2</sub> S (ppm)	CO (ppm)	CO <sub>2</sub> (%)	LEL (%)
SVEW02	11/26/2014	11:35	479.3	9	910	21.10	52.7	0.9	4.4	0.0	1.0	1.8	0.0
	12/4/2014	NM	608.6	8	232	5.80	53.1	NM	1.0	0.0	2.0	NM	23.0
	12/9/2014	NM	687	4	87	2.10	41.2	NM	11.7	0.0	0.0	NM	18.0
	12/29/2014	13:20	1006.4	4	194	3.10	33.3	0.0	7.5	0.0	0.0	2.3	7.0
SVES02	11/26/2014	11:40	478.2	11	855	18.60	44.7	0.7	16.2	87.0	1.0	0.3	0.0
	12/4/2014	NM	607.5	WELL SHUT IN DUE TO H2S PRESENCE									
SVE01	11/26/2014	11:45	465.8	7	600	14.90	54.4	3.7	9.4	0.0	1.0	6.0	5.0
	12/4/2014	NM	595	6.5	216	5.50	52.3	NM	0.0	0.0	0.0	NM	41.0
	12/9/2014	NM	673.4	6	234	5.30	46.8	NM	16.5	0.0	0.0	NM	22.0
	12/29/2014	13:10	872.8	6	218	5.15	35.2	0.0	17.4	0.0	0.0	3.2	0.0

Notes:

fpm - feet per minute

cfm - cubic feet per minute

PID - photoionization detector

ppm - parts per million

O<sub>2</sub> - oxygen

H<sub>2</sub>S - hydrogen sulfide

CO - carbon monoxide

CO<sub>2</sub> - carbon dioxide

CH<sub>4</sub> - methane

°F - degrees fahrenheit

> - greater than

mg/kg - milligrams per kilogram

TPH - total petroleum hydrocarbons

Range of Spoil Samples exceeding the COGCC TPH standard of 500 mg/kg

Sample ID	Date	TPH (mg/kg)
SVEE02	8/29/2013	2,300
SVEN02	8/29/2013	730





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Tax I.D. 62-0814289

Est. 1970

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

## Report Summary

Monday October 29, 2012

Report Number: L602402


Samples Received: 10/24/12

Client Project: H29A

Description: H29A Pit Bottom

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

October 29, 2012

Date Received : October 24, 2012  
Description : H29A Pit Bottom  
Sample ID : H29A-PB-WWALL-102312 5-10 IN  
Collected By : Matt Kasten  
Collection Date : 10/22/12 09:00

ESC Sample # : L602402-01

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	10/25/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/25/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/25/12	5
Total Xylene	0.045	0.0075	mg/kg	8021/8015	10/25/12	5
TPH (GC/FID) Low Fraction	2.3	0.50	mg/kg	GRO	10/25/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	96.7		% Rec.	8021/8015	10/25/12	5
a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021/8015	10/25/12	5
TPH (GC/FID) High Fraction	20000	320	mg/kg	3546/DRO	10/26/12	80
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	10/26/12	80

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 10/29/12 17:22 Printed: 10/29/12 17:23



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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

October 29, 2012

Date Received : October 24, 2012  
Description : H29A Pit Bottom  
Sample ID : H29A-PB-WBOT-102312 5-10 IN  
Collected By : Matt Kasten  
Collection Date : 10/22/12 09:05

ESC Sample # : L602402-02

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.22	0.12	mg/kg	8021/8015	10/25/12	250
Toluene	2.3	1.2	mg/kg	8021/8015	10/25/12	250
Ethylbenzene	1.2	0.12	mg/kg	8021/8015	10/25/12	250
Total Xylene	9.9	0.38	mg/kg	8021/8015	10/25/12	250
TPH (GC/FID) Low Fraction	300	25.	mg/kg	GRO	10/25/12	250
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.1		% Rec.	8021/8015	10/25/12	250
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	10/25/12	250
TPH (GC/FID) High Fraction	900	20.	mg/kg	3546/DRO	10/26/12	5
Surrogate recovery(%)						
o-Terphenyl	68.0		% Rec.	3546/DRO	10/26/12	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

October 29, 2012

Date Received : October 24, 2012  
Description : H29A Pit Bottom  
Sample ID : H29A-PB-SWWALL-102312 5-10 IN  
Collected By : Matt Kasten  
Collection Date : 10/22/12 09:10

ESC Sample # : L602402-03

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	10/25/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/25/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/25/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/25/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/25/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.5		% Rec.	8021/8015	10/25/12	5
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	10/25/12	5
TPH (GC/FID) High Fraction	920	80.	mg/kg	3546/DRO	10/26/12	20
Surrogate recovery(%)						
o-Terphenyl	103.		% Rec.	3546/DRO	10/26/12	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

October 29, 2012

Date Received : October 24, 2012  
Description : H29A Pit Bottom  
Sample ID : H29A-PB-NWALL-102312 5-10 IN  
Collected By : Matt Kasten  
Collection Date : 10/22/12 09:15

ESC Sample # : L602402-04

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	10/25/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/25/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/25/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/25/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/25/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.2		% Rec.	8021/8015	10/25/12	5
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	10/25/12	5
TPH (GC/FID) High Fraction	290	80.	mg/kg	3546/DRO	10/26/12	20
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	10/26/12	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

October 29, 2012

Date Received : October 24, 2012  
Description : H29A Pit Bottom  
Sample ID : H29A-PB-CENTER-102312 5-10 IN  
Collected By : Matt Kasten  
Collection Date : 10/22/12 09:20

ESC Sample # : L602402-05

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	10/26/12	1
Chromium, Trivalent	17.	2.0	mg/kg	Calc.	10/25/12	1
ORP	180		mV	2580	10/29/12	1
pH	8.2		su	9045D	10/25/12	1
Sodium Adsorption Ratio	26.			Calc.	10/26/12	1
Specific Conductance	1200		umhos/cm	9050AMod	10/25/12	1
Mercury	0.47	0.020	mg/kg	7471	10/25/12	1
Arsenic	26.	1.0	mg/kg	6010B	10/25/12	1
Barium	1900	0.25	mg/kg	6010B	10/25/12	1
Cadmium	BDL	0.25	mg/kg	6010B	10/25/12	1
Chromium	17.	0.50	mg/kg	6010B	10/25/12	1
Copper	27.	1.0	mg/kg	6010B	10/25/12	1
Lead	20.	1.2	mg/kg	6010B	10/25/12	5
Nickel	14.	1.0	mg/kg	6010B	10/25/12	1
Selenium	4.2	1.0	mg/kg	6010B	10/25/12	1
Silver	BDL	2.5	mg/kg	6010B	10/25/12	5
Zinc	50.	1.5	mg/kg	6010B	10/25/12	1
Benzene	0.091	0.0025	mg/kg	8021/8015	10/25/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/25/12	5
Ethylbenzene	0.041	0.0025	mg/kg	8021/8015	10/25/12	5
Total Xylene	0.38	0.0075	mg/kg	8021/8015	10/25/12	5
TPH (GC/FID) Low Fraction	9.8	0.50	mg/kg	GRO	10/25/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	104.		% Rec.	8021/8015	10/25/12	5
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	10/25/12	5
TPH (GC/FID) High Fraction	670	20.	mg/kg	3546/DRO	10/26/12	5
Surrogate recovery(%)						
o-Terphenyl	107.		% Rec.	3546/DRO	10/26/12	5
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.12	mg/kg	8270C-SIM	10/29/12	20
Acenaphthene	BDL	0.12	mg/kg	8270C-SIM	10/29/12	20
Acenaphthylene	BDL	0.12	mg/kg	8270C-SIM	10/29/12	20
Benzo(a)anthracene	BDL	0.12	mg/kg	8270C-SIM	10/29/12	20
Benzo(a)pyrene	BDL	0.12	mg/kg	8270C-SIM	10/29/12	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

L602402-05 (SV8270PAHSIM) - Cannot run at lower dilution due to viscosity of extract

L602402-05 (PH) - 8.2@23.0c



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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

October 29, 2012

Date Received : October 24, 2012  
Description : H29A Pit Bottom  
Sample ID : H29A-PB-CENTER-102312 5-10 IN  
Collected By : Matt Kasten  
Collection Date : 10/22/12 09:20

ESC Sample # : L602402-05

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	10/29/12	20
Benzo(g,h,i)perylene	BDL	0.12	mg/kg	8270C-SIM	10/29/12	20
Benzo(k)fluoranthene	BDL	0.12	mg/kg	8270C-SIM	10/29/12	20
Chrysene	BDL	0.12	mg/kg	8270C-SIM	10/29/12	20
Dibenz(a,h)anthracene	BDL	0.12	mg/kg	8270C-SIM	10/29/12	20
Fluoranthene	BDL	0.12	mg/kg	8270C-SIM	10/29/12	20
Fluorene	0.22	0.12	mg/kg	8270C-SIM	10/29/12	20
Indeno(1,2,3-cd)pyrene	BDL	0.12	mg/kg	8270C-SIM	10/29/12	20
Naphthalene	0.60	0.12	mg/kg	8270C-SIM	10/29/12	20
Phenanthrene	0.13	0.12	mg/kg	8270C-SIM	10/29/12	20
Pyrene	BDL	0.12	mg/kg	8270C-SIM	10/29/12	20
1-Methylnaphthalene	0.32	0.12	mg/kg	8270C-SIM	10/29/12	20
2-Methylnaphthalene	0.76	0.12	mg/kg	8270C-SIM	10/29/12	20
2-Chloronaphthalene	BDL	0.12	mg/kg	8270C-SIM	10/29/12	20
Surrogate Recovery						
Nitrobenzene-d5	242.		% Rec.	8270C-SIM	10/29/12	20
2-Fluorobiphenyl	106.		% Rec.	8270C-SIM	10/29/12	20
p-Terphenyl-d14	72.3		% Rec.	8270C-SIM	10/29/12	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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L602402-05 (SV8270PAHSIM) - Cannot run at lower dilution due to viscosity of extract

L602402-05 (PH) - 8.2@23.0c



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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

October 29, 2012

Date Received : October 24, 2012  
Description : H29A Pit Bottom  
Sample ID : H29A-PB-SEWALL-102312 5-10 IN  
Collected By : Matt Kasten  
Collection Date : 10/22/12 09:25

ESC Sample # : L602402-06

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	10/25/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/25/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/25/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/25/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/25/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.1		% Rec.	8021/8015	10/25/12	5
a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021/8015	10/25/12	5
TPH (GC/FID) High Fraction	480	40.	mg/kg	3546/DRO	10/26/12	10
Surrogate recovery(%)						
o-Terphenyl	67.8		% Rec.	3546/DRO	10/26/12	10

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

October 29, 2012

Date Received : October 24, 2012  
Description : H29A Pit Bottom  
Sample ID : H29A-PB-EBOT-102312 5-10 IN  
Collected By : Matt Kasten  
Collection Date : 10/22/12 09:30

ESC Sample # : L602402-07

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.0032	0.0025	mg/kg	8021/8015	10/25/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/25/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/25/12	5
Total Xylene	0.022	0.0075	mg/kg	8021/8015	10/25/12	5
TPH (GC/FID) Low Fraction	2.0	0.50	mg/kg	GRO	10/25/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	97.8		% Rec.	8021/8015	10/25/12	5
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	10/25/12	5
TPH (GC/FID) High Fraction	3900	160	mg/kg	3546/DRO	10/29/12	40
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	3546/DRO	10/29/12	40

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
2717 County Road 215, Suite 100  
Parachute, CO 81635

October 29, 2012

Date Received : October 24, 2012  
Description : H29A Pit Bottom  
Sample ID : H29A-PB-EWALL-102312 5-10 IN  
Collected By : Matt Kasten  
Collection Date : 10/22/12 09:35

ESC Sample # : L602402-08

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021/8015	10/25/12	5
Toluene	BDL	0.025	mg/kg	8021/8015	10/25/12	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	10/25/12	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	10/25/12	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	10/25/12	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	98.4		% Rec.	8021/8015	10/25/12	5
a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021/8015	10/25/12	5
TPH (GC/FID) High Fraction	220	20.	mg/kg	3546/DRO	10/29/12	5
Surrogate recovery(%)						
o-Terphenyl	27.6		% Rec.	3546/DRO	10/29/12	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 10/29/12 17:22 Printed: 10/29/12 17:23

L602402-08 (DRO) - low surrogate confirmed with first extraction

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L602402-01	WG619575	SAMP	o-Terphenyl	R2408158	J7
L602402-03	WG619575	SAMP	o-Terphenyl	R2408158	J7
L602402-04	WG619575	SAMP	o-Terphenyl	R2408158	J7
L602402-05	WG619502	SAMP	Arsenic	R2408639	J3
	WG619502	SAMP	Barium	R2408639	V
	WG619502	SAMP	Lead	R2408639	B
	WG619502	SAMP	Selenium	R2408639	P1
	WG619502	SAMP	Silver	R2408639	O
	WG619586	SAMP	Nitrobenzene-d5	R2413060	J7
	WG619586	SAMP	2-Fluorobiphenyl	R2413060	J7
	WG619586	SAMP	p-Terphenyl-d14	R2413060	J7
	WG619638	SAMP	pH	R2408117	T8
L602402-07	WG619954	SAMP	o-Terphenyl	R2412820	J7
L602402-08	WG619954	SAMP	o-Terphenyl	R2412820	J2

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
B	(EPA) - The indicated compound was found in the associated method blank as well as the laboratory sample.
J2	Surrogate recovery limits have been exceeded; values are outside lower control limits
J3	The associated batch QC was outside the established quality control range for precision.
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
P1	RPD value not applicable for sample concentrations less than 5 times the reporting limit.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
V	(ESC) - Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
10/29/12 at 17:23:20

TSR Signing Reports: 358  
R4 - Rush: Three Day

Try not to report benzene as BDL above a 250x dilution. ONLY log soil samples under this account. Waters get logged under ENCRCO. Log all PAHs as PAHSIM.

Sample: L602402-01 Account: ENCANACO Received: 10/24/12 09:00 Due Date: 10/29/12 00:00 RPT Date: 10/29/12 17:22  
Sample: L602402-02 Account: ENCANACO Received: 10/24/12 09:00 Due Date: 10/29/12 00:00 RPT Date: 10/29/12 17:22  
Sample: L602402-03 Account: ENCANACO Received: 10/24/12 09:00 Due Date: 10/29/12 00:00 RPT Date: 10/29/12 17:22  
Sample: L602402-04 Account: ENCANACO Received: 10/24/12 09:00 Due Date: 10/29/12 00:00 RPT Date: 10/29/12 17:22  
Sample: L602402-05 Account: ENCANACO Received: 10/24/12 09:00 Due Date: 10/29/12 00:00 RPT Date: 10/29/12 17:22  
Sample: L602402-06 Account: ENCANACO Received: 10/24/12 09:00 Due Date: 10/29/12 00:00 RPT Date: 10/29/12 17:22  
Sample: L602402-07 Account: ENCANACO Received: 10/24/12 09:00 Due Date: 10/29/12 00:00 RPT Date: 10/29/12 17:22  
Sample: L602402-08 Account: ENCANACO Received: 10/24/12 09:00 Due Date: 10/29/12 00:00 RPT Date: 10/29/12 17:22



**YOUR LAB OF CHOICE**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L602402

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October 29, 2012

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG619524	10/24/12 15:01
Ethylbenzene	< .0005	mg/kg			WG619524	10/24/12 15:01
Toluene	< .005	mg/kg			WG619524	10/24/12 15:01
TPH (GC/FID) Low Fraction	< .1	mg/kg			WG619524	10/24/12 15:01
Total Xylene	< .0015	mg/kg			WG619524	10/24/12 15:01
a,a,a-Trifluorotoluene(FID)		% Rec.	99.31	59-128	WG619524	10/24/12 15:01
a,a,a-Trifluorotoluene(PID)		% Rec.	104.1	54-144	WG619524	10/24/12 15:01
Mercury	< .02	mg/kg			WG619532	10/25/12 09:10
TPH (GC/FID) High Fraction	< 4	mg/kg			WG619575	10/25/12 10:12
o-Terphenyl		% Rec.	73.49	50-150	WG619575	10/25/12 10:12
Arsenic	< 1	mg/kg			WG619502	10/25/12 07:07
Barium	< .25	mg/kg			WG619502	10/25/12 07:07
Cadmium	< .25	mg/kg			WG619502	10/25/12 07:07
Chromium	< .5	mg/kg			WG619502	10/25/12 07:07
Copper	< 1	mg/kg			WG619502	10/25/12 07:07
Lead	0.570	mg/kg			WG619502	10/25/12 07:07
Nickel	< 1	mg/kg			WG619502	10/25/12 07:07
Selenium	< 1	mg/kg			WG619502	10/25/12 07:07
Silver	< .5	mg/kg			WG619502	10/25/12 07:07
Zinc	< 1.5	mg/kg			WG619502	10/25/12 07:07
Specific Conductance	1.16	umhos/cm			WG619627	10/25/12 15:17
Chromium,Hexavalent	< 2	mg/kg			WG619636	10/26/12 10:13
TPH (GC/FID) High Fraction	< 4	mg/kg			WG619954	10/29/12 07:51
o-Terphenyl		% Rec.	77.93	50-150	WG619954	10/29/12 07:51

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
			Duplicate					
Mercury	mg/kg	0.0210	0		NA	20	L602386-04	WG619532
pH	su	8.10	8.20		1.35*	1	L602402-05	WG619638
pH	su	8.60	8.60		0.233	1	L602456-04	WG619638
Arsenic	mg/kg	18.0	26.0		36.4*	20	L602402-05	WG619502
Barium	mg/kg	1900	1900		0	20	L602402-05	WG619502
Cadmium	mg/kg	0	0		0	20	L602402-05	WG619502
Chromium	mg/kg	18.0	17.0		5.71	20	L602402-05	WG619502
Copper	mg/kg	27.0	27.0		0	20	L602402-05	WG619502
Nickel	mg/kg	13.0	14.0		7.41	20	L602402-05	WG619502
Selenium	mg/kg	3.40	4.20		21.1*	20	L602402-05	WG619502
Zinc	mg/kg	51.0	50.0		1.98	20	L602402-05	WG619502
Lead	mg/kg	19.0	20.0		5.13	20	L602402-05	WG619502
Silver	mg/kg	0	0		0	20	L602402-05	WG619502

\* Performance of this Analyte is outside of established criteria.  
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



**YOUR LAB OF CHOICE**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
2717 County Road 215, Suite 100

Parachute, CO 81635

Quality Assurance Report  
Level II

L602402

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

October 29, 2012

Analyte	Units	Result	Duplicate		RPD	Limit	Ref Samp	Batch
Specific Conductance	umhos/cm	2700		2900	6.41	20	L601661-02	WG619627
Specific Conductance	umhos/cm	1200		1200	1.68	20	L602402-05	WG619627
Chromium,Hexavalent	mg/kg	0		0	0	20	L602275-06	WG619636
ORP	mV	170.		170.	0.587	20	L602331-01	WG620203
ORP	mV	0		0	0	20	L603219-04	WG620203

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0494	98.7	76-113	WG619524
Ethylbenzene	mg/kg	.05	0.0551	110.	78-115	WG619524
Toluene	mg/kg	.05	0.0526	105.	76-114	WG619524
Total Xylene	mg/kg	.15	0.166	111.	81-118	WG619524
a,a,a-Trifluorotoluene(PID)				103.2	54-144	WG619524
TPH (GC/FID) Low Fraction	mg/kg	5.5	5.47	99.5	67-135	WG619524
a,a,a-Trifluorotoluene(FID)				96.19	59-128	WG619524
Mercury	mg/kg	12.4	14.3	115.	71.6-128	WG619532
pH	su	6.03	5.99	99.3	98-101	WG619638
TPH (GC/FID) High Fraction	mg/kg	60	44.6	74.3	50-150	WG619575
o-Terphenyl				75.87	50-150	WG619575
Arsenic	mg/kg	237	231.	97.5	83.1-117	WG619502
Barium	mg/kg	252	243.	96.4	84.1-116	WG619502
Cadmium	mg/kg	191	186.	97.4	83.2-117	WG619502
Chromium	mg/kg	128	125.	97.7	81.3-118	WG619502
Copper	mg/kg	123	122.	99.2	83.7-116	WG619502
Lead	mg/kg	103	109.	106.	83.1-117	WG619502
Nickel	mg/kg	118	109.	92.4	82-118	WG619502
Selenium	mg/kg	110	108.	98.2	78.7-122	WG619502
Silver	mg/kg	47.3	43.1	91.1	66.2-134	WG619502
Zinc	mg/kg	183	178.	97.3	82-118	WG619502
Specific Conductance	umhos/cm	1050	1060	101.	85-115	WG619627
Chromium,Hexavalent	mg/kg	150	144.	96.0	80-120	WG619636
TPH (GC/FID) High Fraction	mg/kg	60	47.6	79.4	50-150	WG619954
o-Terphenyl				82.15	50-150	WG619954
ORP	mV	228	226.	99.1	95.6-104.	WG620203

\* Performance of this Analyte is outside of established criteria.  
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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0483	0.0494	96.0	76-113	2.22	20	WG619524
Ethylbenzene	mg/kg	0.0544	0.0551	109.	78-115	1.39	20	WG619524
Toluene	mg/kg	0.0515	0.0526	103.	76-114	2.13	20	WG619524
Total Xylene	mg/kg	0.163	0.166	109.	81-118	1.84	20	WG619524
a,a,a-Trifluorotoluene(PID)				101.3	54-144			WG619524
TPH (GC/FID) Low Fraction	mg/kg	5.54	5.47	101.	67-135	1.28	20	WG619524
a,a,a-Trifluorotoluene(FID)				96.12	59-128			WG619524
pH	su	6.01	5.99	100.	98-101	0.333	20	WG619638
TPH (GC/FID) High Fraction	mg/kg	42.4	44.6	71.0	50-150	5.01	20	WG619575
o-Terphenyl				71.12	50-150			WG619575
Specific Conductance	umhos/	1060	1060	101.	85-115	0	20	WG619627
Chromium,Hexavalent	mg/kg	138.	144.	92.0	80-120	4.26	20	WG619636
TPH (GC/FID) High Fraction	mg/kg	46.8	47.6	78.0	50-150	1.69	20	WG619954
o-Terphenyl				80.31	50-150			WG619954
ORP	mV	223.	226.	98.0	95.6-104.	1.34	20	WG620203

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/kg	0.240	0	.05	96.1	32-137	L602396-03	WG619524
Ethylbenzene	mg/kg	0.265	0	.05	106.	10-150	L602396-03	WG619524
Toluene	mg/kg	0.257	0	.05	103.	20-142	L602396-03	WG619524
Total Xylene	mg/kg	0.797	0	.15	106.	16-141	L602396-03	WG619524
a,a,a-Trifluorotoluene(PID)					104.0	54-144		WG619524
TPH (GC/FID) Low Fraction	mg/kg	23.4	0	5.5	84.9	55-109	L602396-03	WG619524
a,a,a-Trifluorotoluene(FID)					94.17	59-128		WG619524
Mercury	mg/kg	0.259	0	.25	104.	80-120	L602386-04	WG619532
Arsenic	mg/kg	70.2	26.0	50	88.4	75-125	L602402-05	WG619502
Barium	mg/kg	2690	1900	50	1580*	75-125	L602402-05	WG619502
Cadmium	mg/kg	48.6	0	50	97.2	75-125	L602402-05	WG619502
Chromium	mg/kg	64.4	17.0	50	94.8	75-125	L602402-05	WG619502
Copper	mg/kg	76.0	27.0	50	98.0	75-125	L602402-05	WG619502
Nickel	mg/kg	55.8	14.0	50	83.6	75-125	L602402-05	WG619502
Selenium	mg/kg	53.6	4.20	50	98.8	75-125	L602402-05	WG619502
Zinc	mg/kg	90.9	50.0	50	81.8	75-125	L602402-05	WG619502
Lead	mg/kg	72.0	20.0	10	104.	75-125	L602402-05	WG619502
Silver	mg/kg	47.7	0	10	95.4	75-125	L602402-05	WG619502
Chromium,Hexavalent	mg/kg	85.2	0	20	85.2	75-125	L602275-02	WG619636
TPH (GC/FID) High Fraction	mg/kg	29.8	4.50	60	42.1*	50-150	L602130-01	WG619575
o-Terphenyl					60.17	50-150		WG619575

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Est. 1970

October 29, 2012

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.229	0.240	91.5	32-137	4.86	39	L602396-03	WG619524
Ethylbenzene	mg/kg	0.245	0.265	98.1	10-150	7.80	44	L602396-03	WG619524
Toluene	mg/kg	0.240	0.257	96.0	20-142	6.75	42	L602396-03	WG619524
Total Xylene	mg/kg	0.733	0.797	97.8	16-141	8.35	46	L602396-03	WG619524
a,a,a-Trifluorotoluene(PID)				103.7	54-144				WG619524
TPH (GC/FID) Low Fraction	mg/kg	26.1	23.4	94.8	55-109	10.9	20	L602396-03	WG619524
a,a,a-Trifluorotoluene(FID)				94.84	59-128				WG619524
Mercury	mg/kg	0.266	0.259	106.	80-120	2.67	20	L602386-04	WG619532
Arsenic	mg/kg	67.7	70.2	83.4	75-125	3.63	20	L602402-05	WG619502
Barium	mg/kg	3270	2690	2740*	75-125	19.5	20	L602402-05	WG619502
Cadmium	mg/kg	49.7	48.6	99.4	75-125	2.24	20	L602402-05	WG619502
Chromium	mg/kg	68.4	64.4	103.	75-125	6.02	20	L602402-05	WG619502
Copper	mg/kg	76.4	76.0	98.8	75-125	0.525	20	L602402-05	WG619502
Nickel	mg/kg	57.6	55.8	87.2	75-125	3.17	20	L602402-05	WG619502
Selenium	mg/kg	52.4	53.6	96.4	75-125	2.26	20	L602402-05	WG619502
Zinc	mg/kg	104.	90.9	108.	75-125	13.4	20	L602402-05	WG619502
Lead	mg/kg	75.9	72.0	112.	75-125	5.27	20	L602402-05	WG619502
Silver	mg/kg	48.0	47.7	96.0	75-125	0.627	20	L602402-05	WG619502
Chromium,Hexavalent	mg/kg	90.4	85.2	90.4	75-125	5.92	20	L602275-02	WG619636
TPH (GC/FID) High Fraction	mg/kg	30.4	29.8	43.2*	50-150	2.23	20	L602130-01	WG619575
o-Terphenyl				56.45	50-150				WG619575

Batch number /Run number / Sample number cross reference

WG619524: R2406837: L602402-01 02 03 04 05 06 07 08  
WG619532: R2407917: L602402-05  
WG619638: R2408117: L602402-05  
WG619575: R2408158: L602402-01 02 03 04 05 06  
WG619502: R2408639: L602402-05  
WG619627: R2408700: L602402-05  
WG619636: R2409398: L602402-05  
WG619665: R2410037: L602402-05  
WG619954: R2412820: L602402-07 08  
WG619586: R2413060: L602402-05  
WG620203: R2413077: L602402-05

\* \* Calculations are performed prior to rounding of reported values.

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October 29, 2012

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Friday February 08, 2013

Report Number: L618662


Samples Received: 02/06/13

Client Project: 033412003

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 08, 2013

Date Received : February 06, 2013  
Description : H29A  
Sample ID : H29A-SB01-020413 10-10.5  
Collected By : Chris McKisson  
Collection Date : 02/04/13 13:50

ESC Sample # : L618662-01

Site ID :

Project # : 033412003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	2600		col/g	9215B	02/06/13	1000
Nitrate	1.8	1.0	mg/kg	9056	02/06/13	1
Sulfate	510	50.	mg/kg	9056	02/06/13	1
Iron	19000	5.0	mg/kg	6010B	02/07/13	1
Benzene	BDL	0.0025	mg/kg	8021B	02/06/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	98.1		% Rec.	8021B	02/06/13	5
TPH (GC/FID) High Fraction	21.	4.0	mg/kg	3546/DRO	02/08/13	1
Surrogate recovery(%) o-Terphenyl	52.8		% Rec.	3546/DRO	02/08/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 02/08/13 16:46 Printed: 02/08/13 17:03



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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 08, 2013

Date Received : February 06, 2013  
Description : H29A  
Sample ID : H29A-SB01-020413 15-17.5  
Collected By : Chris McKisson  
Collection Date : 02/04/13 14:30

ESC Sample # : L618662-02

Site ID :

Project # : 033412003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	39.		col/g	9215B	02/06/13	1000
Nitrate	BDL	1.0	mg/kg	9056	02/06/13	1
Sulfate	BDL	50.	mg/kg	9056	02/06/13	1
Iron	15000	5.0	mg/kg	6010B	02/07/13	1
Benzene	0.012	0.0025	mg/kg	8021B	02/06/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	98.2		% Rec.	8021B	02/06/13	5
TPH (GC/FID) High Fraction	2300	200	mg/kg	3546/DRO	02/08/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/08/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 08, 2013

Date Received : February 06, 2013  
Description : H29A  
Sample ID : H29A-SB01-020413 20-22.5  
Collected By : Chris McKisson  
Collection Date : 02/04/13 14:40

ESC Sample # : L618662-03

Site ID :

Project # : 033412003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	<12		col/g	9215B	02/06/13	1000
Nitrate	BDL	1.0	mg/kg	9056	02/06/13	1
Sulfate	86.	50.	mg/kg	9056	02/06/13	1
Iron	8.6	5.0	mg/kg	6010B	02/07/13	1
Benzene	0.035	0.0025	mg/kg	8021B	02/06/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	96.4		% Rec.	8021B	02/06/13	5
TPH (GC/FID) High Fraction	2100	200	mg/kg	3546/DRO	02/08/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/08/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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143 Diamond Avenue  
Parachute, CO 81635

February 08, 2013

Date Received : February 06, 2013  
Description : H29A  
Sample ID : H29A-SB01-020413 25-27.5  
Collected By : Chris McKisson  
Collection Date : 02/04/13 15:00

ESC Sample # : L618662-04

Site ID :

Project # : 033412003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	<11		col/g	9215B	02/06/13	1000
Nitrate	BDL	1.0	mg/kg	9056	02/06/13	1
Sulfate	380	50.	mg/kg	9056	02/06/13	1
Iron	8.6	5.0	mg/kg	6010B	02/07/13	1
Benzene	0.047	0.0025	mg/kg	8021B	02/06/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	97.2		% Rec.	8021B	02/06/13	5
TPH (GC/FID) High Fraction	1900	200	mg/kg	3546/DRO	02/08/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/08/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

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143 Diamond Avenue  
Parachute, CO 81635

February 08, 2013

Date Received : February 06, 2013  
Description : H29A  
Sample ID : H29A-SB01-020413 30-32.5  
Collected By : Chris McKisson  
Collection Date : 02/04/13 15:20

ESC Sample # : L618662-05

Site ID :

Project # : 033412003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	<12		col/g	9215B	02/06/13	1000
Nitrate	BDL	1.0	mg/kg	9056	02/06/13	1
Sulfate	260	50.	mg/kg	9056	02/06/13	1
Iron	6.9	5.0	mg/kg	6010B	02/07/13	1
Benzene	0.044	0.0025	mg/kg	8021B	02/06/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	97.4		% Rec.	8021B	02/06/13	5
TPH (GC/FID) High Fraction	1800	200	mg/kg	3546/DRO	02/08/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/08/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L618662-01	WG636005	SAMP	Standard Plate Count	R2534778	T8W
L618662-02	WG636005	SAMP	Standard Plate Count	R2534778	T8W
	WG635495	SAMP	o-Terphenyl	R2534057	J7
L618662-03	WG636005	SAMP	Standard Plate Count	R2534778	T8W
	WG635495	SAMP	o-Terphenyl	R2534057	J7
L618662-04	WG636005	SAMP	Standard Plate Count	R2534778	T8W
	WG635495	SAMP	o-Terphenyl	R2534057	J7
L618662-05	WG636005	SAMP	Standard Plate Count	R2534778	T8W
	WG635495	SAMP	o-Terphenyl	R2534057	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
W	(ESC)-The laboratory analysis was from a sample collected in an improper container

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



**YOUR LAB OF CHOICE**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
143 Diamond Avenue

Parachute, CO 81635

Quality Assurance Report  
Level II

L618662

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

February 08, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG635522	02/06/13 13:50
Ethylbenzene	< .0005	mg/kg			WG635522	02/06/13 13:50
Toluene	< .005	mg/kg			WG635522	02/06/13 13:50
Total Xylene	< .0015	mg/kg			WG635522	02/06/13 13:50
a,a,a-Trifluorotoluene(PID)		% Rec.	100.6	54-144	WG635522	02/06/13 13:50
Nitrate	< 1	mg/kg			WG635530	02/06/13 18:16
Sulfate	< 50	mg/kg			WG635530	02/06/13 18:16
Iron	< 5	mg/kg			WG635555	02/07/13 12:50
TPH (GC/FID) High Fraction	< 4	mg/kg			WG635495	02/08/13 08:47
o-Terphenyl		% Rec.	66.80	50-150	WG635495	02/08/13 08:47

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Iron	mg/kg	5000	6490	25.9*	20	L618137-01	WG635555

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0416	83.3	76-113	WG635522
Ethylbenzene	mg/kg	.05	0.0500	100.	78-115	WG635522
Toluene	mg/kg	.05	0.0458	91.7	76-114	WG635522
Total Xylene	mg/kg	.15	0.148	98.8	81-118	WG635522
a,a,a-Trifluorotoluene(PID)				97.79	54-144	WG635522
Nitrate	mg/kg	20	20.9	105.	80-120	WG635530
Sulfate	mg/kg	200	213.	107.	85-115	WG635530
Iron	mg/kg	13100	10200	77.9	50.8-150	WG635555
TPH (GC/FID) High Fraction	mg/kg	60	39.7	66.1	50-150	WG635495
o-Terphenyl				72.10	50-150	WG635495

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0434	0.0416	87.0	76-113	4.25	20	WG635522
Ethylbenzene	mg/kg	0.0511	0.0500	102.	78-115	2.06	20	WG635522
Toluene	mg/kg	0.0468	0.0458	94.0	76-114	2.05	20	WG635522
Total Xylene	mg/kg	0.151	0.148	100.	81-118	1.63	20	WG635522
a,a,a-Trifluorotoluene(PID)				97.64	54-144			WG635522
Nitrate	mg/kg	20.7	20.9	104.	80-120	0.962	20	WG635530
Sulfate	mg/kg	211.	213.	106.	85-115	0.943	20	WG635530
TPH (GC/FID) High Fraction	mg/kg	41.5	39.7	69.0	50-150	4.66	20	WG635495
o-Terphenyl				71.50	50-150			WG635495

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/kg	2.08	0.0520	.05	81.2	32-137	L618236-06	WG635522
Ethylbenzene	mg/kg	2.70	0.200	.05	100.	10-150	L618236-06	WG635522
Toluene	mg/kg	2.52	0	.05	101.	20-142	L618236-06	WG635522
Total Xylene	mg/kg	9.13	1.70	.15	99.0	16-141	L618236-06	WG635522
a,a,a-Trifluorotoluene(PID)					168.3*	54-144		WG635522
Iron	mg/kg	6670	0	50	13300*	75-125	L618137-01	WG635555

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	2.35	2.08	92.1	32-137	12.2	39	L618236-06	WG635522
Ethylbenzene	mg/kg	3.00	2.70	112.	10-150	10.5	44	L618236-06	WG635522
Toluene	mg/kg	2.79	2.52	112.	20-142	10.2	42	L618236-06	WG635522
Total Xylene	mg/kg	10.1	9.13	112.	16-141	10.6	46	L618236-06	WG635522
a,a,a-Trifluorotoluene(PID)				184.3*	54-144				WG635522
Iron	mg/kg	8050	6670	16100*	75-125	18.8	20	L618137-01	WG635555

Batch number / Run number / Sample number cross reference

WG635522: R2531197: L618662-01 02 03 04 05  
WG635530: R2532518: L618662-01 02 03 04 05  
WG635555: R2533257: L618662-01 02 03 04 05  
WG635495: R2534057: L618662-01 02 03 04 05  
WG636005: R2534778: L618662-01 02 03 04 05

\* \* Calculations are performed prior to rounding of reported values.  
\* Performance of this Analyte is outside of established criteria.  
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Thursday February 14, 2013

Report Number: L619088


Samples Received: 02/07/13

Client Project: 033413003

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 14, 2013

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB01-020513 35-37 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 09:30

ESC Sample # : L619088-01

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	8.0		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/13/13	1
Sulfate	400	50.	mg/kg	9056	02/13/13	1
Iron	14000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.046	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	BDL	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 02/14/13 15:35 Printed: 02/14/13 15:35



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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 14, 2013

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB01-020513 40-42 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 09:55

ESC Sample # : L619088-02

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	<1		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/13/13	1
Sulfate	510	50.	mg/kg	9056	02/13/13	1
Iron	15000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.15	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	99.3		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	1200	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 02/14/13 15:35 Printed: 02/14/13 15:35



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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 14, 2013

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB01-020513 45-47 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 10:15

ESC Sample # : L619088-03

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	<1		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/13/13	1
Sulfate	780	50.	mg/kg	9056	02/13/13	1
Iron	16000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.16	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	99.1		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	2000	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 02/14/13 15:35 Printed: 02/14/13 15:35



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# REPORT OF ANALYSIS

February 14, 2013

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB01-020513 50-52 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 10:45

ESC Sample # : L619088-04

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	<1		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/13/13	1
Sulfate	610	50.	mg/kg	9056	02/13/13	1
Iron	15000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.16	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	99.3		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	1600	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 02/14/13 15:35 Printed: 02/14/13 15:35

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L619088-01	WG636282	SAMP	Standard Plate Count	R2536759	T8W
	WG635883	SAMP	TPH (GC/FID) High Fraction	R2537279	O
L619088-02	WG635883	SAMP	o-Terphenyl	R2537279	J7
	WG636282	SAMP	Standard Plate Count	R2536759	T8W
L619088-03	WG635883	SAMP	o-Terphenyl	R2537279	J7
	WG636282	SAMP	Standard Plate Count	R2536759	T8W
L619088-04	WG635883	SAMP	o-Terphenyl	R2537279	J7
	WG636282	SAMP	Standard Plate Count	R2536759	T8W
	WG635883	SAMP	o-Terphenyl	R2537279	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
W	(ESC)-The laboratory analysis was from a sample collected in an improper container

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

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- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
02/14/13 at 15:35:41

TSR Signing Reports: 358  
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). ONLY log soil samples under this account. Waters get logged under ENCRCO. Log all PAHs as PAHSIM. Try not to report benzene as BDL above a 250x dilution.

Sample: L619088-01 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/14/13 00:00 RPT Date: 02/14/13 15:35

Sample: L619088-02 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/14/13 00:00 RPT Date: 02/14/13 15:35

Sample: L619088-03 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/14/13 00:00 RPT Date: 02/14/13 15:35

Sample: L619088-04 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/14/13 00:00 RPT Date: 02/14/13 15:35



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG635856	02/07/13 21:44
a,a,a-Trifluorotoluene(PID)		% Rec.	106.3	54-144	WG635856	02/07/13 21:44
TPH (GC/FID) High Fraction	< 4	mg/kg			WG635883	02/11/13 16:13
o-Terphenyl		% Rec.	75.60	50-150	WG635883	02/11/13 16:13
Iron	< 5	mg/kg			WG636239	02/11/13 21:42
Nitrate	< 1	mg/kg			WG636317	02/13/13 14:30
Sulfate	< 50	mg/kg			WG636317	02/13/13 14:30

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Iron	mg/kg	15000	15000	0	20	L619086-02	WG636239
Nitrate	mg/kg	0	0	0	20	L619088-04	WG636317
Nitrate	mg/kg	0	0	0	20	L619093-01	WG636317
Sulfate	mg/kg	910.	830.	9.20	20	L619093-01	WG636317

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0488	97.5	76-113	WG635856
a,a,a-Trifluorotoluene(PID)				105.6	54-144	WG635856
TPH (GC/FID) High Fraction	mg/kg	60	40.5	67.5	50-150	WG635883
o-Terphenyl				74.50	50-150	WG635883
Iron	mg/kg	13100	10800	82.4	50.8-150	WG636239
Nitrate	mg/kg	20	20.1	101.	80-120	WG636317
Sulfate	mg/kg	200	205.	103.	85-115	WG636317

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0471	0.0488	94.0	76-113	3.37	20	WG635856
a,a,a-Trifluorotoluene(PID)				106.0	54-144			WG635856
TPH (GC/FID) High Fraction	mg/kg	42.4	40.5	71.0	50-150	4.54	20	WG635883
o-Terphenyl				76.60	50-150			WG635883
Nitrate	mg/kg	20.1	20.1	100.	80-120	0	20	WG636317
Sulfate	mg/kg	205.	205.	102.	85-115	0	20	WG636317

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.222	0	.05	88.7	32-137	L619086-01	WG635856

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



YOUR LAB OF CHOICE

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
143 Diamond Avenue

Parachute, CO 81635

Quality Assurance Report  
Level II

L619088

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

February 14, 2013

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
a,a,a-Trifluorotoluene(PID)					104.2	54-144		
Iron	mg/kg	15200	15000	50	400.*	75-125	L619086-02	WG636239
Nitrate	mg/kg	48.0	0	50	96.0	80-120	L619090-02	WG636317
Sulfate	mg/kg	5580	5300	500	56.0*	80-120	L619090-02	WG636317

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.223	0.222	89.2	32-137	0.530	39	L619086-01	WG635856
a,a,a-Trifluorotoluene(PID)				103.3	54-144				WG635856
Iron	mg/kg	15800	15200	1600*	75-125	3.87	20	L619086-02	WG636239
Nitrate	mg/kg	49.1	48.0	4.91*	80-120	2.27	20	L619090-02	WG636317
Sulfate	mg/kg	5500	5580	40.0*	80-120	1.44	20	L619090-02	WG636317

Batch number /Run number / Sample number cross reference

WG635856: R2536519: L619088-01 02 03 04  
WG636282: R2536759: L619088-01 02 03 04  
WG635883: R2537279: L619088-01 02 03 04  
WG636239: R2537399: L619088-01 02 03 04  
WG636317: R2541777: L619088-01 02 03 04

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Tuesday February 19, 2013

Report Number: L619086


Samples Received: 02/07/13

Client Project: 033413003

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

This report may not be reproduced, except in full, without written approval from ESC Lab Sciences. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 19, 2013

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB02-020513 10-12 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 12:05

ESC Sample # : L619086-01

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	430		col/g	9215B	02/08/13	1000
Nitrate	BDL	1.0	mg/kg	9056	02/12/13	1
Sulfate	480	50.	mg/kg	9056	02/12/13	1
Iron	15000	5.0	mg/kg	6010B	02/11/13	1
Benzene	BDL	0.0025	mg/kg	8021B	02/07/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021B	02/07/13	5
TPH (GC/FID) High Fraction	83.	20.	mg/kg	3546/DRO	02/11/13	5
Surrogate recovery(%) o-Terphenyl	136.		% Rec.	3546/DRO	02/11/13	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 02/19/13 13:37 Printed: 02/19/13 13:38



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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 19, 2013

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB02-020513 15-17 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 12:20

ESC Sample # : L619086-02

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	1.0		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/12/13	1
Sulfate	6400	1000	mg/kg	9056	02/14/13	20
Iron	15000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.021	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	310	200	mg/kg	3546/DRO	02/08/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/08/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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# REPORT OF ANALYSIS

February 19, 2013

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB02-020513 20-22 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 12:35

ESC Sample # : L619086-03

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	6.0		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/13/13	1
Sulfate	1100	500	mg/kg	9056	02/14/13	10
Iron	14000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.035	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	95.6		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	660	200	mg/kg	3546/DRO	02/08/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/08/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 19, 2013

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB02-020513 25-26.5 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 12:50

ESC Sample # : L619086-04

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	4.0		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/13/13	1
Sulfate	2700	250	mg/kg	9056	02/14/13	5
Iron	14000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.034	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	600	200	mg/kg	3546/DRO	02/08/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/08/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 19, 2013

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB02-020513 30-32 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 13:10

ESC Sample # : L619086-05

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	4.0		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/13/13	1
Sulfate	3000	250	mg/kg	9056	02/14/13	5
Iron	14000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.048	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	730	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

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EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 19, 2013

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB02-020513 35-37 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 13:30

ESC Sample # : L619086-06

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	2.0		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/13/13	1
Sulfate	1000	50.	mg/kg	9056	02/13/13	1
Iron	15000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.024	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	BDL	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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143 Diamond Avenue  
Parachute, CO 81635

February 19, 2013

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB02-020513 40-42 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 13:45

ESC Sample # : L619086-07

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	360		col/g	9215B	02/08/13	1000
Nitrate	3.0	1.0	mg/kg	9056	02/13/13	1
Sulfate	730	50.	mg/kg	9056	02/13/13	1
Iron	14000	5.0	mg/kg	6010B	02/11/13	1
Benzene	BDL	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	12.	4.0	mg/kg	3546/DRO	02/11/13	1
Surrogate recovery(%) o-Terphenyl	72.5		% Rec.	3546/DRO	02/11/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L619086-01	WG636265	SAMP	Standard Plate Count	R2536757	T8W
L619086-02	WG636239	SAMP	Iron	R2537399	V
	WG636265	SAMP	Standard Plate Count	R2536757	T8W
	WG635815	SAMP	o-Terphenyl	R2535438	J7
L619086-03	WG636265	SAMP	Standard Plate Count	R2536757	T8W
	WG635815	SAMP	o-Terphenyl	R2535438	J7
L619086-04	WG636265	SAMP	Standard Plate Count	R2536757	T8W
	WG635815	SAMP	o-Terphenyl	R2535438	J7
L619086-05	WG636265	SAMP	Standard Plate Count	R2536757	T8W
	WG635883	SAMP	o-Terphenyl	R2537279	J7
L619086-06	WG636265	SAMP	Standard Plate Count	R2536757	T8W
	WG635883	SAMP	TPH (GC/FID) High Fraction	R2537279	O
	WG635883	SAMP	o-Terphenyl	R2537279	J7
L619086-07	WG636265	SAMP	Standard Plate Count	R2536757	T8W

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
V	(ESC) - Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.
W	(ESC)-The laboratory analysis was from a sample collected in an improper container

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
02/19/13 at 13:38:23

TSR Signing Reports: 358  
RX - Priority Rush

Log ALL samples for EDD (COGCC EDD). ONLY log soil samples under this account. Waters get logged under ENCRCO. Log all PAHs as PAHSIM. Try not to report benzene as BDL above a 250x dilution.

Sample: L619086-01 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/19/13 00:00 RPT Date: 02/19/13 13:37  
Sample: L619086-02 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/19/13 00:00 RPT Date: 02/19/13 13:37  
Sample: L619086-03 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/19/13 00:00 RPT Date: 02/19/13 13:37  
Sample: L619086-04 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/19/13 00:00 RPT Date: 02/19/13 13:37  
Sample: L619086-05 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/19/13 00:00 RPT Date: 02/19/13 13:37  
Sample: L619086-06 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/19/13 00:00 RPT Date: 02/19/13 13:37  
Sample: L619086-07 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/19/13 00:00 RPT Date: 02/19/13 13:37



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February 19, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
TPH (GC/FID) High Fraction o-Terphenyl	< 4	mg/kg			WG635815	02/08/13 14:13
		% Rec.	72.40	50-150	WG635815	02/08/13 14:13
TPH (GC/FID) High Fraction o-Terphenyl	< 4	mg/kg			WG635948	02/11/13 08:36
		% Rec.	65.60	50-150	WG635948	02/11/13 08:36
Benzene a,a,a-Trifluorotoluene(PID)	< .0005	mg/kg			WG635856	02/07/13 21:44
		% Rec.	106.3	54-144	WG635856	02/07/13 21:44
TPH (GC/FID) High Fraction o-Terphenyl	< 4	mg/kg			WG635883	02/11/13 16:13
		% Rec.	75.60	50-150	WG635883	02/11/13 16:13
Iron	< 5	mg/kg			WG636239	02/11/13 21:42
Nitrate	< 1	mg/kg			WG635813	02/12/13 13:11
Sulfate	< 50	mg/kg			WG635813	02/12/13 13:11
Nitrate	< 1	mg/kg			WG636317	02/13/13 14:30
Sulfate	< 50	mg/kg			WG636317	02/13/13 14:30
Sulfate	< 50	mg/kg			WG636384	02/14/13 04:30

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Iron	mg/kg	15000	15000	0	20	L619086-02	WG636239
Sulfate	mg/kg	0	0	0	20	L618696-01	WG635813
Nitrate	mg/kg	0	0	0	20	L619088-04	WG636317
Nitrate	mg/kg	0	0	0	20	L619093-01	WG636317
Sulfate	mg/kg	910.	830.	9.20	20	L619093-01	WG636317

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	60	46.9	78.2	50-150	WG635815
				72.60	50-150	WG635815
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	60	38.2	63.6	50-150	WG635948
				69.20	50-150	WG635948
Benzene a,a,a-Trifluorotoluene(PID)	mg/kg	.05	0.0488	97.5	76-113	WG635856
				105.6	54-144	WG635856
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	60	40.5	67.5	50-150	WG635883
				74.50	50-150	WG635883

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



**YOUR LAB OF CHOICE**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
143 Diamond Avenue

Parachute, CO 81635

Quality Assurance Report  
Level II

L619086

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

February 19, 2013

Analyte	Units	Laboratory Control		Sample	% Rec	Limit	Batch
		Known	Val	Result			
Iron	mg/kg	13100		10800	82.4	50.8-150	WG636239
Nitrate	mg/kg	20		20.0	100.	80-120	WG635813
Sulfate	mg/kg	200		204.	102.	85-115	WG635813
Nitrate	mg/kg	20		20.1	101.	80-120	WG636317
Sulfate	mg/kg	200		205.	103.	85-115	WG636317
Sulfate	mg/kg	200		197.	98.5	85-115	WG636384

Analyte	Units	Laboratory Control		Sample Duplicate	Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	47.4	46.9	79.0 71.10	50-150 50-150	1.12	20	WG635815 WG635815
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	40.5	38.2	68.0 74.30	50-150 50-150	6.06	20	WG635948 WG635948
Benzene a,a,a-Trifluorotoluene(PID)	mg/kg	0.0471	0.0488	94.0 106.0	76-113 54-144	3.37	20	WG635856 WG635856
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	42.4	40.5	71.0 76.60	50-150 50-150	4.54	20	WG635883 WG635883
Nitrate	mg/kg	20.5	20.0	102.	80-120	2.47	20	WG635813
Sulfate	mg/kg	209.	204.	104.	85-115	2.42	20	WG635813
Nitrate	mg/kg	20.1	20.1	100.	80-120	0	20	WG636317
Sulfate	mg/kg	205.	205.	102.	85-115	0	20	WG636317
Sulfate	mg/kg	193.	197.	96.0	85-115	2.05	20	WG636384

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	69.9	29.0	60	68.2 66.00	50-150 50-150	L619120-01	WG635815 WG635815
Benzene a,a,a-Trifluorotoluene(PID)	mg/kg	0.222	0	.05	88.7 104.2	32-137 54-144	L619086-01	WG635856 WG635856
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	106.	85.0	60	34.2* 68.70	50-150 50-150	L619211-04	WG635948 WG635948
Iron	mg/kg	15200	15000	50	400.*	75-125	L619086-02	WG636239

\* Performance of this Analyte is outside of established criteria.

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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Sulfate	mg/kg	2250	1400	500	170.*	80-120	L619207-01	WG635813
Nitrate	mg/kg	48.0	0	50	96.0	80-120	L619090-02	WG636317
Sulfate	mg/kg	5580	5300	500	56.0*	80-120	L619090-02	WG636317

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
TPH (GC/FID) High Fraction	mg/kg	65.5	69.9	60.9	50-150	6.47	20	L619120-01	WG635815
o-Terphenyl				64.60	50-150				WG635815
Benzene	mg/kg	0.223	0.222	89.2	32-137	0.530	39	L619086-01	WG635856
a,a,a-Trifluorotoluene(PID)				103.3	54-144				WG635856
TPH (GC/FID) High Fraction	mg/kg	108.	106.	38.3*	50-150	2.33	20	L619211-04	WG635948
o-Terphenyl				75.20	50-150				WG635948
Iron	mg/kg	15800	15200	1600*	75-125	3.87	20	L619086-02	WG636239
Sulfate	mg/kg	2210	2250	162.*	80-120	1.79	20	L619207-01	WG635813
Nitrate	mg/kg	49.1	48.0	4.91*	80-120	2.27	20	L619090-02	WG636317
Sulfate	mg/kg	5500	5580	40.0*	80-120	1.44	20	L619090-02	WG636317

Batch number /Run number / Sample number cross reference

WG635815: R2535438: L619086-02 03 04  
WG635948: R2535897: L619086-01  
WG635856: R2536519: L619086-01 02 03 04 05 06 07  
WG636265: R2536757: L619086-01 02 03 04 05 06 07  
WG635883: R2537279: L619086-05 06 07  
WG636239: R2537399: L619086-01 02 03 04 05 06 07  
WG635813: R2539037: L619086-01 02 03  
WG636317: R2541777: L619086-04 05 06 07  
WG636384: R2543178: L619086-02 03

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Thursday February 14, 2013

Report Number: L619090


Samples Received: 02/07/13

Client Project: 033413003

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 14, 2013

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB03-020513 10-12 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 15:20

ESC Sample # : L619090-01

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	4700		col/g	9215B	02/08/13	100
Nitrate	1.3	1.0	mg/kg	9056	02/13/13	1
Sulfate	3000	500	mg/kg	9056	02/14/13	10
Iron	16000	5.0	mg/kg	6010B	02/11/13	1
Benzene	BDL	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	BDL	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 02/14/13 15:35 Printed: 02/14/13 15:35



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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 14, 2013

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB03-020513 15-17 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 15:35

ESC Sample # : L619090-02

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	510		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/13/13	1
Sulfate	5300	1000	mg/kg	9056	02/14/13	20
Iron	16000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.0042	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	1300	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 02/14/13 15:35 Printed: 02/14/13 15:35



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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 14, 2013

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB03-020513 20-22 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 15:50

ESC Sample # : L619090-03

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	35.		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/13/13	1
Sulfate	7000	1000	mg/kg	9056	02/14/13	20
Iron	14000	5.0	mg/kg	6010B	02/11/13	1
Benzene	BDL	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	870	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 02/14/13 15:35 Printed: 02/14/13 15:35



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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 14, 2013

Date Received : February 07, 2013  
Description : H29A  
Sample ID : H29A-SB03-020513 25-27 FT  
Collected By : Chris McKisson  
Collection Date : 02/05/13 16:10

ESC Sample # : L619090-04

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	1200		col/g	9215B	02/08/13	100
Nitrate	3.4	1.0	mg/kg	9056	02/13/13	1
Sulfate	8300	2500	mg/kg	9056	02/14/13	50
Iron	14000	5.0	mg/kg	6010B	02/13/13	1
Benzene	BDL	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	BDL	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 02/14/13 15:35 Printed: 02/14/13 15:35

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L619090-01	WG636308	SAMP	Standard Plate Count	R2536777	T8W
	WG635883	SAMP	TPH (GC/FID) High Fraction	R2537279	O
L619090-02	WG635883	SAMP	o-Terphenyl	R2537279	J7
	WG636317	SAMP	Sulfate	R2541777	V
	WG636308	SAMP	Standard Plate Count	R2536777	T8W
	WG635883	SAMP	o-Terphenyl	R2537279	J7
L619090-03	WG636308	SAMP	Standard Plate Count	R2536777	T8W
	WG635883	SAMP	o-Terphenyl	R2537279	J7
L619090-04	WG636308	SAMP	Standard Plate Count	R2536777	T8W
	WG635883	SAMP	TPH (GC/FID) High Fraction	R2537279	O
	WG635883	SAMP	o-Terphenyl	R2537279	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
V	(ESC) - Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.
W	(ESC)-The laboratory analysis was from a sample collected in an improper container

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy** - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision** - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate** - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC** - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
02/14/13 at 15:35:46

TSR Signing Reports: 358  
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). ONLY log soil samples under this account. Waters get logged under ENCRCO. Log all PAHs as PAHSIM. Try not to report benzene as BDL above a 250x dilution.

Sample: L619090-01 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/14/13 00:00 RPT Date: 02/14/13 15:35

Sample: L619090-02 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/14/13 00:00 RPT Date: 02/14/13 15:35

Sample: L619090-03 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/14/13 00:00 RPT Date: 02/14/13 15:35

Sample: L619090-04 Account: ENCANACO Received: 02/07/13 09:00 Due Date: 02/14/13 00:00 RPT Date: 02/14/13 15:35



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG635856	02/07/13 21:44
a,a,a-Trifluorotoluene(PID)		% Rec.	106.3	54-144	WG635856	02/07/13 21:44
TPH (GC/FID) High Fraction	< 4	mg/kg			WG635883	02/11/13 16:13
o-Terphenyl		% Rec.	75.60	50-150	WG635883	02/11/13 16:13
Iron	< 5	mg/kg			WG636239	02/11/13 21:42
Iron	< 5	mg/kg			WG636240	02/13/13 07:41
Nitrate	< 1	mg/kg			WG636317	02/13/13 14:30
Sulfate	< 50	mg/kg			WG636317	02/13/13 14:30

Analyte	Units	Result	Duplicate		Limit	Ref Samp	Batch
			Duplicate	RPD			
Iron	mg/kg	15000	15000	0	20	L619086-02	WG636239
Iron	mg/kg	14000	14500	3.51	20	L619280-05	WG636240
Nitrate	mg/kg	0	0	0	20	L619088-04	WG636317
Nitrate	mg/kg	0	0	0	20	L619093-01	WG636317
Sulfate	mg/kg	910.	830.	9.20	20	L619093-01	WG636317

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0488	97.5	76-113	WG635856
a,a,a-Trifluorotoluene(PID)				105.6	54-144	WG635856
TPH (GC/FID) High Fraction	mg/kg	60	40.5	67.5	50-150	WG635883
o-Terphenyl				74.50	50-150	WG635883
Iron	mg/kg	13100	10800	82.4	50.8-150	WG636239
Iron	mg/kg	13100	12200	93.1	50.8-150	WG636240
Nitrate	mg/kg	20	20.1	101.	80-120	WG636317
Sulfate	mg/kg	200	205.	103.	85-115	WG636317

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0471	0.0488	94.0	76-113	3.37	20	WG635856
a,a,a-Trifluorotoluene(PID)				106.0	54-144			WG635856
TPH (GC/FID) High Fraction	mg/kg	42.4	40.5	71.0	50-150	4.54	20	WG635883
o-Terphenyl				76.60	50-150			WG635883

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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February 14, 2013

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Nitrate	mg/kg	20.1	20.1	100.	80-120	0	20	WG636317
Sulfate	mg/kg	205.	205.	102.	85-115	0	20	WG636317

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/kg	0.222	0	.05	88.7	32-137	L619086-01	WG635856
a,a,a-Trifluorotoluene(PID)					104.2	54-144		WG635856
Iron	mg/kg	15200	15000	50	400.*	75-125	L619086-02	WG636239
Iron	mg/kg	13800	14500	50	0*	75-125	L619280-05	WG636240
Nitrate	mg/kg	48.0	0	50	96.0	80-120	L619090-02	WG636317
Sulfate	mg/kg	5580	5300	500	56.0*	80-120	L619090-02	WG636317

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.223	0.222	89.2	32-137	0.530	39	L619086-01	WG635856
a,a,a-Trifluorotoluene(PID)				103.3	54-144				WG635856
Iron	mg/kg	15800	15200	1600*	75-125	3.87	20	L619086-02	WG636239
Iron	mg/kg	14900	13800	800.*	75-125	7.67	20	L619280-05	WG636240
Nitrate	mg/kg	49.1	48.0	4.91*	80-120	2.27	20	L619090-02	WG636317
Sulfate	mg/kg	5500	5580	40.0*	80-120	1.44	20	L619090-02	WG636317

Batch number /Run number / Sample number cross reference

WG635856: R2536519: L619090-01 02 03 04  
WG636308: R2536777: L619090-01 02 03 04  
WG635883: R2537279: L619090-01 02 03 04  
WG636239: R2537399: L619090-01 02 03  
WG636240: R2540118: L619090-04  
WG636317: R2541777: L619090-01 02 03 04

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
143 Diamond Avenue

Parachute, CO 81635

Quality Assurance Report  
Level II

L619090

12065 Lebanon Rd.  
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February 14, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Tuesday February 12, 2013

Report Number: L619207


Samples Received: 02/08/13

Client Project: 033413003

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB03-020613  
Collected By : Chris McKisson  
Collection Date : 02/06/13 08:45

ESC Sample # : L619207-01

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	1200		col/g	9215B	02/08/13	1000
Nitrate	2.6	1.0	mg/kg	9056	02/08/13	1
Sulfate	1400	250	mg/kg	9056	02/12/13	5
Iron	14000	5.0	mg/kg	6010B	02/11/13	1
Benzene	BDL	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	4.7	4.0	mg/kg	3546/DRO	02/11/13	1
Surrogate recovery(%) o-Terphenyl	69.6		% Rec.	3546/DRO	02/11/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 02/12/13 19:42 Printed: 02/12/13 19:42

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L619207-01	WG635813	SAMP	Sulfate	R2539037	J5
	WG636407	SAMP	Standard Plate Count	R2538678	T8W

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
W	(ESC)-The laboratory analysis was from a sample collected in an improper container

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
02/12/13 at 19:42:49

TSR Signing Reports: 358  
R3 - Rush: Two Day

Log ALL samples for EDD (COGCC EDD). ONLY log soil samples under this account. Waters get logged under ENCRCO. Log all PAHs as PAHSIM. Try not to report benzene as BDL above a 250x dilution.

Sample: L619207-01 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 19:42



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EnCana Oil & Gas Inc. - CO  
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L619207

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February 12, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG635944	02/08/13 17:29
a,a,a-Trifluorotoluene(PID)		% Rec.	102.6	54-144	WG635944	02/08/13 17:29
Nitrate	< 1	mg/kg			WG635938	02/08/13 17:27
TPH (GC/FID) High Fraction	< 4	mg/kg			WG635948	02/11/13 08:36
o-Terphenyl		% Rec.	65.60	50-150	WG635948	02/11/13 08:36
Iron	< 5	mg/kg			WG635930	02/11/13 18:22
Sulfate	< 50	mg/kg			WG635813	02/12/13 13:11

Analyte	Units	Result	Duplicate		Limit	Ref Samp	Batch
			Duplicate	RPD			
Nitrate	mg/kg	0	0	0	20	L619214-05	WG635938
Iron	mg/kg	7700	7400	3.97	20	L618742-01	WG635930

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0466	93.1	76-113	WG635944
a,a,a-Trifluorotoluene(PID)				104.8	54-144	WG635944
Nitrate	mg/kg	20	19.4	97.0	80-120	WG635938
TPH (GC/FID) High Fraction	mg/kg	60	38.2	63.6	50-150	WG635948
o-Terphenyl				69.20	50-150	WG635948
Iron	mg/kg	13100	9190	70.2	50.8-150	WG635930
Sulfate	mg/kg	200	204.	102.	85-115	WG635813

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0464	0.0466	93.0	76-113	0.260	20	WG635944
a,a,a-Trifluorotoluene(PID)				103.4	54-144			WG635944
Nitrate	mg/kg	20.4	19.4	102.	80-120	5.03	20	WG635938
TPH (GC/FID) High Fraction	mg/kg	40.5	38.2	68.0	50-150	6.06	20	WG635948
o-Terphenyl				74.30	50-150			WG635948
Sulfate	mg/kg	209.	204.	104.	85-115	2.42	20	WG635813

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/kg	0.248	0	.05	99.2	32-137	L619211-01	WG635944
a,a,a-Trifluorotoluene(PID)					103.7	54-144		WG635944
Nitrate	mg/kg	52.2	2.59	50	99.2	80-120	L619207-01	WG635938
TPH (GC/FID) High Fraction	mg/kg	106.	85.0	60	34.2*	50-150	L619211-04	WG635948
o-Terphenyl					68.70	50-150		WG635948
Iron	mg/kg	7590	7400	50	380.*	75-125	L618742-01	WG635930
Sulfate	mg/kg	2250	1400	500	170.*	80-120	L619207-01	WG635813

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.234	0.248	93.4	32-137	6.00	39	L619211-01	WG635944
a,a,a-Trifluorotoluene(PID)				102.3	54-144				WG635944
Nitrate	mg/kg	51.7	52.2	98.2	80-120	0.962	20	L619207-01	WG635938
TPH (GC/FID) High Fraction	mg/kg	108.	106.	38.3*	50-150	2.33	20	L619211-04	WG635948
o-Terphenyl				75.20	50-150				WG635948
Iron	mg/kg	7810	7590	820.*	75-125	2.86	20	L618742-01	WG635930
Sulfate	mg/kg	2210	2250	162.*	80-120	1.79	20	L619207-01	WG635813

Batch number /Run number / Sample number cross reference

WG635944: R2535358: L619207-01  
WG635938: R2535757: L619207-01  
WG635948: R2535897: L619207-01  
WG635930: R2537358: L619207-01  
WG636407: R2538678: L619207-01  
WG635813: R2539037: L619207-01

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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February 12, 2013

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Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Tuesday February 12, 2013

Report Number: L619211


Samples Received: 02/08/13

Client Project: 033413003

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB04-020613 10-12FT  
Collected By : Chris McKisson  
Collection Date : 02/06/13 09:50

ESC Sample # : L619211-01

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	4200		col/g	9215B	02/08/13	10000
Nitrate	18.	1.0	mg/kg	9056	02/09/13	1
Sulfate	3000	250	mg/kg	9056	02/09/13	5
Iron	14000	5.0	mg/kg	6010B	02/11/13	1
Benzene	BDL	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	28.	4.0	mg/kg	3546/DRO	02/11/13	1
Surrogate recovery(%) o-Terphenyl	85.0		% Rec.	3546/DRO	02/11/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB04-020613 15-17.5FT  
Collected By : Chris McKisson  
Collection Date : 02/06/13 10:10

ESC Sample # : L619211-02

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	500		col/g	9215B	02/08/13	1000
Nitrate	4.7	1.0	mg/kg	9056	02/09/13	1
Sulfate	190	50.	mg/kg	9056	02/09/13	1
Iron	15000	5.0	mg/kg	6010B	02/11/13	1
Benzene	BDL	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	31.	4.0	mg/kg	3546/DRO	02/11/13	1
Surrogate recovery(%) o-Terphenyl	71.8		% Rec.	3546/DRO	02/11/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB04-020613 20-22FT  
Collected By : Chris McKisson  
Collection Date : 02/06/13 10:25

ESC Sample # : L619211-03

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	36.		col/g	9215B	02/08/13	1000
Nitrate	4.8	1.0	mg/kg	9056	02/08/13	1
Sulfate	400	50.	mg/kg	9056	02/08/13	1
Iron	13000	5.0	mg/kg	6010B	02/11/13	1
Benzene	BDL	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	20.	4.0	mg/kg	3546/DRO	02/11/13	1
Surrogate recovery(%) o-Terphenyl	69.4		% Rec.	3546/DRO	02/11/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB04-020613 25-25.5FT  
Collected By : Chris McKisson  
Collection Date : 02/06/13 10:45

ESC Sample # : L619211-04

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	45.		col/g	9215B	02/08/13	1000
Nitrate	4.4	1.0	mg/kg	9056	02/08/13	1
Sulfate	470	50.	mg/kg	9056	02/08/13	1
Iron	17000	5.0	mg/kg	6010B	02/11/13	1
Benzene	BDL	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	85.	4.0	mg/kg	3546/DRO	02/11/13	1
Surrogate recovery(%) o-Terphenyl	84.2		% Rec.	3546/DRO	02/11/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 02/12/13 16:18 Printed: 02/12/13 16:18

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L619211-01	WG636424	SAMP	Standard Plate Count	R2538657	T8W
L619211-02	WG636424	SAMP	Standard Plate Count	R2538657	T8W
L619211-03	WG636424	SAMP	Standard Plate Count	R2538657	T8W
L619211-04	WG636424	SAMP	Standard Plate Count	R2538657	T8W
	WG635948	SAMP	TPH (GC/FID) High Fraction	R2535897	J6

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
W	(ESC)-The laboratory analysis was from a sample collected in an improper container

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
02/12/13 at 16:18:50

TSR Signing Reports: 358  
R3 - Rush: Two Day

Log ALL samples for EDD (COGCC EDD). ONLY log soil samples under this account. Waters get logged under ENCRCO. Log all PAHs as PAHSIM. Try not to report benzene as BDL above a 250x dilution.

Sample: L619211-01 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 16:18

Sample: L619211-02 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 16:18

Sample: L619211-03 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 16:18

Sample: L619211-04 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 16:18



**YOUR LAB OF CHOICE**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
143 Diamond Avenue

Parachute, CO 81635

Quality Assurance Report  
Level II

L619211

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

February 12, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG635944	02/08/13 17:29
a,a,a-Trifluorotoluene(PID)		% Rec.	102.6	54-144	WG635944	02/08/13 17:29
Nitrate	< 1	mg/kg			WG635938	02/08/13 17:27
Sulfate	< 50	mg/kg			WG635938	02/08/13 17:27
TPH (GC/FID) High Fraction	< 4	mg/kg			WG635948	02/11/13 08:36
o-Terphenyl		% Rec.	65.60	50-150	WG635948	02/11/13 08:36
Iron	< 5	mg/kg			WG635930	02/11/13 18:22

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Nitrate	mg/kg	0	0	0	20	L619214-05	WG635938
Sulfate	mg/kg	260.	270.	3.77	20	L619214-05	WG635938
Iron	mg/kg	7700	7400	3.97	20	L618742-01	WG635930

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0466	93.1	76-113	WG635944
a,a,a-Trifluorotoluene(PID)				104.8	54-144	WG635944
Nitrate	mg/kg	20	19.4	97.0	80-120	WG635938
Sulfate	mg/kg	200	198.	99.0	85-115	WG635938
TPH (GC/FID) High Fraction	mg/kg	60	38.2	63.6	50-150	WG635948
o-Terphenyl				69.20	50-150	WG635948
Iron	mg/kg	13100	9190	70.2	50.8-150	WG635930

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0464	0.0466	93.0	76-113	0.260	20	WG635944
a,a,a-Trifluorotoluene(PID)				103.4	54-144			WG635944
Nitrate	mg/kg	20.4	19.4	102.	80-120	5.03	20	WG635938
Sulfate	mg/kg	208.	198.	104.	85-115	4.93	20	WG635938
TPH (GC/FID) High Fraction	mg/kg	40.5	38.2	68.0	50-150	6.06	20	WG635948
o-Terphenyl				74.30	50-150			WG635948

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.248	0	.05	99.2	32-137	L619211-01	WG635944
a,a,a-Trifluorotoluene(PID)					103.7	54-144		WG635944

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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February 12, 2013

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Nitrate	mg/kg	52.2	2.59	50	99.2	80-120	L619207-01	WG635938
TPH (GC/FID) High Fraction	mg/kg	106.	85.0	60	34.2*	50-150	L619211-04	WG635948
o-Terphenyl					68.70	50-150		WG635948
Iron	mg/kg	7590	7400	50	380.*	75-125	L618742-01	WG635930

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.234	0.248	93.4	32-137	6.00	39	L619211-01	WG635944
a,a,a-Trifluorotoluene(PID)				102.3	54-144				WG635944
Nitrate	mg/kg	51.7	52.2	98.2	80-120	0.962	20	L619207-01	WG635938
TPH (GC/FID) High Fraction	mg/kg	108.	106.	38.3*	50-150	2.33	20	L619211-04	WG635948
o-Terphenyl				75.20	50-150				WG635948
Iron	mg/kg	7810	7590	820.*	75-125	2.86	20	L618742-01	WG635930

Batch number /Run number / Sample number cross reference

WG635944: R2535358: L619211-01 02 03 04  
WG635938: R2535757: L619211-01 02 03 04  
WG635948: R2535897: L619211-01 02 03 04  
WG635930: R2537358: L619211-01 02 03 04  
WG636424: R2538657: L619211-01 02 03 04

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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February 12, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Tuesday February 12, 2013

Report Number: L619213


Samples Received: 02/08/13

Client Project: 033413003

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB05-020613 10-12FT  
Collected By : Chris McKisson  
Collection Date : 02/06/13 11:55

ESC Sample # : L619213-01

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	8300		col/g	9215B	02/08/13	100
Nitrate	BDL	1.0	mg/kg	9056	02/09/13	1
Sulfate	600	50.	mg/kg	9056	02/09/13	1
Iron	19000	5.0	mg/kg	6010B	02/11/13	1
Benzene	BDL	0.0025	mg/kg	8021B	02/08/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	02/08/13	5
TPH (GC/FID) High Fraction	BDL	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 02/12/13 16:20 Printed: 02/12/13 16:20



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Est. 1970

REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB05-020613 15-17FT  
Collected By : Chris McKisson  
Collection Date : 02/06/13 12:10

ESC Sample # : L619213-02

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	4.0		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/09/13	1
Sulfate	3700	250	mg/kg	9056	02/09/13	5
Iron	16000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.057	0.0025	mg/kg	8021B	02/09/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	02/09/13	5
TPH (GC/FID) High Fraction	1900	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 02/12/13 16:20 Printed: 02/12/13 16:20



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Est. 1970

# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB05-020613 20-22FT  
Collected By : Chris McKisson  
Collection Date : 02/06/13 12:20

ESC Sample # : L619213-03

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	2.0		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/09/13	1
Sulfate	570	50.	mg/kg	9056	02/09/13	1
Iron	17000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.063	0.0025	mg/kg	8021B	02/09/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021B	02/09/13	5
TPH (GC/FID) High Fraction	2300	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 02/12/13 16:20 Printed: 02/12/13 16:20



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Est. 1970

REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB05-020613 25-27FT  
Collected By : Chris McKisson  
Collection Date : 02/06/13 12:35

ESC Sample # : L619213-04

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	2.0		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/09/13	1
Sulfate	460	50.	mg/kg	9056	02/09/13	1
Iron	16000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.057	0.0025	mg/kg	8021B	02/09/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021B	02/09/13	5
TPH (GC/FID) High Fraction	1000	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 02/12/13 16:20 Printed: 02/12/13 16:20



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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB05-020613 30-32FT  
Collected By : Chris McKisson  
Collection Date : 02/06/13 12:55

ESC Sample # : L619213-05

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	10.		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/09/13	1
Sulfate	510	50.	mg/kg	9056	02/09/13	1
Iron	17000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.054	0.0025	mg/kg	8021B	02/09/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	02/09/13	5
TPH (GC/FID) High Fraction	1300	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

This report shall not be reproduced, except in full, without the written approval from ESC.

Reported: 02/12/13 16:20 Printed: 02/12/13 16:20

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L619213-01	WG636431	SAMP	Standard Plate Count	R2538760	T8W
	WG635948	SAMP	TPH (GC/FID) High Fraction	R2535897	O
L619213-02	WG635948	SAMP	o-Terphenyl	R2535897	J7
	WG636431	SAMP	Standard Plate Count	R2538760	T8W
L619213-03	WG635948	SAMP	o-Terphenyl	R2535897	J7
	WG636431	SAMP	Standard Plate Count	R2538760	T8W
L619213-04	WG635948	SAMP	o-Terphenyl	R2535897	J7
	WG636431	SAMP	Standard Plate Count	R2538760	T8W
L619213-05	WG635948	SAMP	o-Terphenyl	R2535897	J7
	WG636431	SAMP	Standard Plate Count	R2538760	T8W
	WG635948	SAMP	o-Terphenyl	R2535897	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
W	(ESC)-The laboratory analysis was from a sample collected in an improper container

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
02/12/13 at 16:20:58

TSR Signing Reports: 358  
R3 - Rush: Two Day

Log ALL samples for EDD (COGCC EDD). ONLY log soil samples under this account. Waters get logged under ENCRCO. Log all PAHs as PAHSIM. Try not to report benzene as BDL above a 250x dilution.

Sample: L619213-01 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 16:20

Sample: L619213-02 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 16:20

Sample: L619213-03 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 16:20

Sample: L619213-04 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 16:20

Sample: L619213-05 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 16:20



**YOUR LAB OF CHOICE**

EnCana Oil & Gas Inc. - CO  
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Quality Assurance Report  
Level II

L619213

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Tax I.D. 62-0814289

Est. 1970

February 12, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG635944	02/08/13 17:29
a,a,a-Trifluorotoluene(PID)		% Rec.	102.6	54-144	WG635944	02/08/13 17:29
Nitrate	< 1	mg/kg			WG635938	02/08/13 17:27
Sulfate	< 50	mg/kg			WG635938	02/08/13 17:27
TPH (GC/FID) High Fraction	< 4	mg/kg			WG635948	02/11/13 08:36
o-Terphenyl		% Rec.	65.60	50-150	WG635948	02/11/13 08:36
Iron	< 5	mg/kg			WG635930	02/11/13 18:22

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Nitrate	mg/kg	0	0	0	20	L619214-05	WG635938
Sulfate	mg/kg	260.	270.	3.77	20	L619214-05	WG635938
Iron	mg/kg	7700	7400	3.97	20	L618742-01	WG635930

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0466	93.1	76-113	WG635944
a,a,a-Trifluorotoluene(PID)				104.8	54-144	WG635944
Nitrate	mg/kg	20	19.4	97.0	80-120	WG635938
Sulfate	mg/kg	200	198.	99.0	85-115	WG635938
TPH (GC/FID) High Fraction	mg/kg	60	38.2	63.6	50-150	WG635948
o-Terphenyl				69.20	50-150	WG635948
Iron	mg/kg	13100	9190	70.2	50.8-150	WG635930

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0464	0.0466	93.0	76-113	0.260	20	WG635944
a,a,a-Trifluorotoluene(PID)				103.4	54-144			WG635944
Nitrate	mg/kg	20.4	19.4	102.	80-120	5.03	20	WG635938
Sulfate	mg/kg	208.	198.	104.	85-115	4.93	20	WG635938
TPH (GC/FID) High Fraction	mg/kg	40.5	38.2	68.0	50-150	6.06	20	WG635948
o-Terphenyl				74.30	50-150			WG635948

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.248	0	.05	99.2	32-137	L619211-01	WG635944
a,a,a-Trifluorotoluene(PID)					103.7	54-144		WG635944

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
143 Diamond Avenue

Parachute, CO 81635

Quality Assurance Report  
Level II

L619213

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
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February 12, 2013

Analyte	Units	MS Res	Matrix Spike		TV	% Rec	Limit	Ref Samp	Batch
			Ref Res						
Nitrate	mg/kg	52.2	2.59	50	99.2	80-120	L619207-01	WG635938	
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	106.	85.0	60	34.2*	50-150	L619211-04	WG635948	
					68.70	50-150		WG635948	
Iron	mg/kg	7590	7400	50	380.*	75-125	L618742-01	WG635930	

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene a,a,a-Trifluorotoluene(PID)	mg/kg	0.234	0.248	93.4	32-137	6.00	39	L619211-01	WG635944
				102.3	54-144				WG635944
Nitrate	mg/kg	51.7	52.2	98.2	80-120	0.962	20	L619207-01	WG635938
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	108.	106.	38.3*	50-150	2.33	20	L619211-04	WG635948
				75.20	50-150				WG635948
Iron	mg/kg	7810	7590	820.*	75-125	2.86	20	L618742-01	WG635930

Batch number /Run number / Sample number cross reference

WG635944: R2535358: L619213-01 02 03 04 05  
WG635938: R2535757: L619213-01 02 03 04 05  
WG635948: R2535897: L619213-01 02 03 04 05  
WG635930: R2537358: L619213-01 02 03 04 05  
WG636431: R2538760: L619213-01 02 03 04 05

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Tuesday February 12, 2013

Report Number: L619214


Samples Received: 02/08/13

Client Project: 033413003

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

This report may not be reproduced, except in full, without written approval from ESC Lab Sciences. Where applicable, sampling conducted by ESC is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.



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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB06-020613 10-12FT  
Collected By : Chris McKisson  
Collection Date : 02/06/13 14:00

ESC Sample # : L619214-01

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	490		col/g	9215B	02/08/13	100
Nitrate	BDL	1.0	mg/kg	9056	02/09/13	1
Sulfate	6700	1000	mg/kg	9056	02/09/13	20
Iron	16000	5.0	mg/kg	6010B	02/11/13	1
Benzene	BDL	0.0025	mg/kg	8021B	02/09/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021B	02/09/13	5
TPH (GC/FID) High Fraction	710	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 02/12/13 16:19 Printed: 02/12/13 16:19



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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB06-020613 15-17FT  
Collected By : Chris McKisson  
Collection Date : 02/06/13 14:10

ESC Sample # : L619214-02

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	28.		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/09/13	1
Sulfate	8400	1000	mg/kg	9056	02/09/13	20
Iron	17000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.012	0.0025	mg/kg	8021B	02/09/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	98.6		% Rec.	8021B	02/09/13	5
TPH (GC/FID) High Fraction	1700	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 02/12/13 16:19 Printed: 02/12/13 16:19



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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB06-020613 20-22FT  
Collected By : Chris McKisson  
Collection Date : 02/06/13 14:25

ESC Sample # : L619214-03

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	2.0		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/09/13	1
Sulfate	880	50.	mg/kg	9056	02/09/13	1
Iron	19000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.061	0.0025	mg/kg	8021B	02/09/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021B	02/09/13	5
TPH (GC/FID) High Fraction	1600	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 02/12/13 16:19 Printed: 02/12/13 16:19



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EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB06-020613 25-27FT  
Collected By : Chris McKisson  
Collection Date : 02/06/13 14:35

ESC Sample # : L619214-04

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	1.0		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/09/13	1
Sulfate	440	50.	mg/kg	9056	02/09/13	1
Iron	16000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.12	0.0025	mg/kg	8021B	02/09/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021B	02/09/13	5
TPH (GC/FID) High Fraction	540	400	mg/kg	3546/DRO	02/11/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 02/12/13 16:19 Printed: 02/12/13 16:19



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REPORT OF ANALYSIS

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143 Diamond Avenue  
Parachute, CO 81635

February 12, 2013

Date Received : February 08, 2013  
Description : H29A  
Sample ID : H29A-SB06-020613 30-32FT  
Collected By : Chris McKisson  
Collection Date : 02/06/13 14:55

ESC Sample # : L619214-05

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	<1		col/g	9215B	02/08/13	10
Nitrate	BDL	1.0	mg/kg	9056	02/09/13	1
Sulfate	270	50.	mg/kg	9056	02/09/13	1
Iron	16000	5.0	mg/kg	6010B	02/11/13	1
Benzene	0.072	0.0025	mg/kg	8021B	02/09/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	02/09/13	5
TPH (GC/FID) High Fraction	650	320	mg/kg	3546/DRO	02/11/13	80
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/11/13	80

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 02/12/13 16:19 Printed: 02/12/13 16:19

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L619214-01	WG636437	SAMP	Standard Plate Count	R2538759	T8W
	WG635948	SAMP	o-Terphenyl	R2535897	J7
L619214-02	WG636437	SAMP	Standard Plate Count	R2538759	T8W
	WG635948	SAMP	o-Terphenyl	R2535897	J7
L619214-03	WG636437	SAMP	Standard Plate Count	R2538759	T8W
	WG635948	SAMP	o-Terphenyl	R2535897	J7
L619214-04	WG636437	SAMP	Standard Plate Count	R2538759	T8W
	WG635948	SAMP	o-Terphenyl	R2535897	J7
L619214-05	WG636437	SAMP	Standard Plate Count	R2538759	T8W
	WG635948	SAMP	o-Terphenyl	R2535897	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
W	(ESC)-The laboratory analysis was from a sample collected in an improper container

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
02/12/13 at 16:20:00

TSR Signing Reports: 358  
R3 - Rush: Two Day

Log ALL samples for EDD (COGCC EDD). ONLY log soil samples under this account. Waters get logged under ENCRCO. Log all PAHs as PAHSIM. Try not to report benzene as BDL above a 250x dilution.

Sample: L619214-01 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 16:19

Sample: L619214-02 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 16:19

Sample: L619214-03 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 16:19

Sample: L619214-04 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 16:19

Sample: L619214-05 Account: ENCANACO Received: 02/08/13 09:00 Due Date: 02/12/13 00:00 RPT Date: 02/12/13 16:19



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Tax I.D. 62-0814289

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February 12, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG635944	02/08/13 17:29
a,a,a-Trifluorotoluene(PID)		% Rec.	102.6	54-144	WG635944	02/08/13 17:29
Nitrate	< 1	mg/kg			WG635938	02/08/13 17:27
Sulfate	< 50	mg/kg			WG635938	02/08/13 17:27
TPH (GC/FID) High Fraction	< 4	mg/kg			WG635948	02/11/13 08:36
o-Terphenyl		% Rec.	65.60	50-150	WG635948	02/11/13 08:36
Iron	< 5	mg/kg			WG635930	02/11/13 18:22

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Nitrate	mg/kg	0	0	0	20	L619214-05	WG635938
Sulfate	mg/kg	260.	270.	3.77	20	L619214-05	WG635938
Iron	mg/kg	7700	7400	3.97	20	L618742-01	WG635930

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0466	93.1	76-113	WG635944
a,a,a-Trifluorotoluene(PID)				104.8	54-144	WG635944
Nitrate	mg/kg	20	19.4	97.0	80-120	WG635938
Sulfate	mg/kg	200	198.	99.0	85-115	WG635938
TPH (GC/FID) High Fraction	mg/kg	60	38.2	63.6	50-150	WG635948
o-Terphenyl				69.20	50-150	WG635948
Iron	mg/kg	13100	9190	70.2	50.8-150	WG635930

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0464	0.0466	93.0	76-113	0.260	20	WG635944
a,a,a-Trifluorotoluene(PID)				103.4	54-144			WG635944
Nitrate	mg/kg	20.4	19.4	102.	80-120	5.03	20	WG635938
Sulfate	mg/kg	208.	198.	104.	85-115	4.93	20	WG635938
TPH (GC/FID) High Fraction	mg/kg	40.5	38.2	68.0	50-150	6.06	20	WG635948
o-Terphenyl				74.30	50-150			WG635948

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.248	0	.05	99.2	32-137	L619211-01	WG635944
a,a,a-Trifluorotoluene(PID)					103.7	54-144		WG635944

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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February 12, 2013

Analyte	Units	MS Res	Matrix Spike		TV	% Rec	Limit	Ref Samp	Batch
			Ref Res						
Nitrate	mg/kg	52.2	2.59		50	99.2	80-120	L619207-01	WG635938
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	106.	85.0	60	34.2*	50-150	L619211-04	WG635948	
					68.70	50-150			
Iron	mg/kg	7590	7400	50	380.*	75-125	L618742-01	WG635930	

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene a,a,a-Trifluorotoluene(PID)	mg/kg	0.234	0.248	93.4	32-137	6.00	39	L619211-01	WG635944
				102.3	54-144				WG635944
Nitrate	mg/kg	51.7	52.2	98.2	80-120	0.962	20	L619207-01	WG635938
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	108.	106.	38.3*	50-150	2.33	20	L619211-04	WG635948
				75.20	50-150				WG635948
Iron	mg/kg	7810	7590	820.*	75-125	2.86	20	L618742-01	WG635930

Batch number /Run number / Sample number cross reference

WG635944: R2535358: L619214-01 02 03 04 05  
WG635938: R2535757: L619214-01 02 03 04 05  
WG635948: R2535897: L619214-01 02 03 04 05  
WG635930: R2537358: L619214-01 02 03 04 05  
WG636437: R2538759: L619214-01 02 03 04 05

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
143 Diamond Avenue

Parachute, CO 81635

Quality Assurance Report  
Level II

L619214

12065 Lebanon Rd.  
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February 12, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Monday February 18, 2013

Report Number: L619642


Samples Received: 02/11/13

Client Project: 033413003

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 18, 2013

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB07-020713 10-12FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 09:05

ESC Sample # : L619642-01

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	<130		col/g	9215B	02/12/13	10000
Nitrate	BDL	1.0	mg/kg	9056	02/14/13	1
Sulfate	5900	500	mg/kg	9056	02/14/13	10
Iron	12000	5.0	mg/kg	6010B	02/14/13	1
Benzene	0.0064	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	BDL	200	mg/kg	3546/DRO	02/16/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/16/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 18, 2013

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB07-020713 15-17FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 09:25

ESC Sample # : L619642-02

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	2.0		col/g	9215B	02/12/13	100
Nitrate	BDL	1.0	mg/kg	9056	02/14/13	1
Sulfate	760	50.	mg/kg	9056	02/14/13	1
Iron	17000	5.0	mg/kg	6010B	02/14/13	1
Benzene	0.019	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	870	40.	mg/kg	3546/DRO	02/14/13	10
Surrogate recovery(%) o-Terphenyl	99.3		% Rec.	3546/DRO	02/14/13	10

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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# REPORT OF ANALYSIS

February 18, 2013

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB07-020713 20-22FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 10:10

ESC Sample # : L619642-03

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	<140		col/g	9215B	02/12/13	10000
Nitrate	BDL	1.0	mg/kg	9056	02/14/13	1
Sulfate	1300	250	mg/kg	9056	02/14/13	5
Iron	16000	5.0	mg/kg	6010B	02/14/13	1
Benzene	0.069	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	620	40.	mg/kg	3546/DRO	02/14/13	10
Surrogate recovery(%) o-Terphenyl	94.6		% Rec.	3546/DRO	02/14/13	10

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
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February 18, 2013

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB07-020713 25-27FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 10:30

ESC Sample # : L619642-04

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	<140		col/g	9215B	02/12/13	10000
Nitrate	BDL	1.0	mg/kg	9056	02/14/13	1
Sulfate	280	50.	mg/kg	9056	02/14/13	1
Iron	14000	5.0	mg/kg	6010B	02/13/13	1
Benzene	0.095	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	220	200	mg/kg	3546/DRO	02/16/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/16/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Parachute, CO 81635

February 18, 2013

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB07-020713 30-32FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 10:45

ESC Sample # : L619642-05

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	200		col/g	9215B	02/12/13	1000
Nitrate	BDL	1.0	mg/kg	9056	02/14/13	1
Sulfate	130	50.	mg/kg	9056	02/14/13	1
Iron	13000	5.0	mg/kg	6010B	02/13/13	1
Benzene	0.082	0.0025	mg/kg	8021B	02/14/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	93.3		% Rec.	8021B	02/14/13	5
TPH (GC/FID) High Fraction	500	200	mg/kg	3546/DRO	02/16/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/16/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L619642-01	WG636930	SAMP	TPH (GC/FID) High Fraction	R2545657	O
	WG636930	SAMP	o-Terphenyl	R2545657	J7
	WG637363	SAMP	Standard Plate Count	R2547038	T8W
L619642-02	WG637363	SAMP	Standard Plate Count	R2547038	T8W
L619642-03	WG637363	SAMP	Standard Plate Count	R2547038	T8W
L619642-04	WG636930	SAMP	o-Terphenyl	R2545657	J7
	WG637363	SAMP	Standard Plate Count	R2547038	T8W
L619642-05	WG636930	SAMP	o-Terphenyl	R2545657	J7
	WG637363	SAMP	Standard Plate Count	R2547038	T8W

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
W	(ESC)-The laboratory analysis was from a sample collected in an improper container

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
02/18/13 at 16:48:17

TSR Signing Reports: 358  
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). ONLY log soil samples under this account. Waters get logged under ENCRCO. Log all PAHs as PAHSIM. Try not to report benzene as BDL above a 250x dilution.

Sample: L619642-01 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/18/13 16:47  
Sample: L619642-02 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/18/13 16:47  
Sample: L619642-03 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/18/13 16:47  
Sample: L619642-04 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/18/13 16:47  
Sample: L619642-05 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/18/13 16:47



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG636321	02/12/13 13:43
a,a,a-Trifluorotoluene(PID)		% Rec.	108.8	54-144	WG636321	02/12/13 13:43
Iron	< 5	mg/kg			WG636466	02/13/13 09:43
Benzene	< .0005	mg/kg			WG636838	02/14/13 09:26
a,a,a-Trifluorotoluene(PID)		% Rec.	96.91	54-144	WG636838	02/14/13 09:26
Nitrate	< 1	mg/kg			WG636384	02/14/13 04:30
Sulfate	< 50	mg/kg			WG636384	02/14/13 04:30
TPH (GC/FID) High Fraction	< 4	mg/kg			WG636331	02/14/13 14:41
o-Terphenyl		% Rec.	88.30	50-150	WG636331	02/14/13 14:41
Iron	< 5	mg/kg			WG636406	02/14/13 18:27
TPH (GC/FID) High Fraction	< 4	mg/kg			WG636930	02/15/13 22:39
o-Terphenyl		% Rec.	81.10	50-150	WG636930	02/15/13 22:39

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Iron	mg/kg	11000	11800	7.02	20	L619726-01	WG636466
Iron	mg/kg	9000	8290	8.21	20	L619539-06	WG636406

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0500	100.	76-113	WG636321
a,a,a-Trifluorotoluene(PID)				107.4	54-144	WG636321
Iron	mg/kg	13100	11000	84.0	50.8-150	WG636466
Benzene	mg/kg	.05	0.0480	96.0	76-113	WG636838
a,a,a-Trifluorotoluene(PID)				93.40	54-144	WG636838
Nitrate	mg/kg	20	19.3	96.5	80-120	WG636384
Sulfate	mg/kg	200	197.	98.5	85-115	WG636384
TPH (GC/FID) High Fraction	mg/kg	60	48.3	80.5	50-150	WG636331
o-Terphenyl				96.90	50-150	WG636331
Iron	mg/kg	13100	12900	98.5	50.8-150	WG636406
TPH (GC/FID) High Fraction	mg/kg	60	47.2	78.7	50-150	WG636930

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch	
		Result	Ref	%Rec					
o-Terphenyl					79.60	50-150			
Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch	
		Result	Ref	%Rec					
Benzene	mg/kg	0.0475	0.0500	95.0	76-113	5.27	20	WG636321	
a,a,a-Trifluorotoluene(PID)				109.2	54-144			WG636321	
Benzene	mg/kg	0.0484	0.0480	97.0	76-113	0.760	20	WG636838	
a,a,a-Trifluorotoluene(PID)				94.58	54-144			WG636838	
Nitrate	mg/kg	18.9	19.3	94.0	80-120	2.09	20	WG636384	
Sulfate	mg/kg	193.	197.	96.0	85-115	2.05	20	WG636384	
TPH (GC/FID) High Fraction	mg/kg	44.5	48.3	74.0	50-150	8.13	20	WG636331	
o-Terphenyl				88.80	50-150			WG636331	
TPH (GC/FID) High Fraction	mg/kg	47.9	47.2	80.0	50-150	1.47	20	WG636930	
o-Terphenyl				79.50	50-150			WG636930	
Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch	
		MS Res	Ref Res	TV					
Benzene	mg/kg	0.267	0	.05	107.	32-137	L619463-01	WG636321	
a,a,a-Trifluorotoluene(PID)					106.5	54-144		WG636321	
Iron	mg/kg	11900	11800	50	200.*	75-125	L619726-01	WG636466	
Benzene	mg/kg	0.228	0	.05	91.1	32-137	L619792-04	WG636838	
a,a,a-Trifluorotoluene(PID)					94.18	54-144		WG636838	
TPH (GC/FID) High Fraction	mg/kg	159.	102.	60	95.2	50-150	L619529-16	WG636331	
o-Terphenyl					80.40	50-150		WG636331	
Iron	mg/kg	9480	8290	50	2380*	75-125	L619539-06	WG636406	
Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Benzene	mg/kg	0.258	0.267	103.	32-137	3.44	39	L619463-01	WG636321
a,a,a-Trifluorotoluene(PID)				107.2	54-144				WG636321
Iron	mg/kg	12100	11900	600.*	75-125	1.67	20	L619726-01	WG636466
Benzene	mg/kg	0.230	0.228	92.0	32-137	1.05	39	L619792-04	WG636838
a,a,a-Trifluorotoluene(PID)				94.94	54-144				WG636838
TPH (GC/FID) High Fraction	mg/kg	192.	159.	150.	50-150	18.9	20	L619529-16	WG636331
* Performance of this Analyte is outside of established criteria.									
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'									

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
o-Terphenyl				80.50	50-150					
Iron	mg/kg	10200	9480	3820*	75-125	7.32	20	L619539-06		WG636406

Batch number /Run number / Sample number cross reference

WG636321: R2540417: L619642-01 02 03 04  
WG636466: R2541503: L619642-04 05  
WG636838: R2542437: L619642-05  
WG636384: R2543178: L619642-01 02 03 04 05  
WG636331: R2543537: L619642-02 03  
WG636406: R2543746: L619642-01 02 03  
WG636930: R2545657: L619642-01 04 05  
WG637363: R2547038: L619642-01 02 03 04 05

\* \* Calculations are performed prior to rounding of reported values.

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February 18, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Est. 1970

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Monday February 18, 2013

Report Number: L619643


Samples Received: 02/11/13

Client Project: 033413003

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jared Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 18, 2013

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB08-020713 10-12FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 11:45

ESC Sample # : L619643-01

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	17000		col/g	9215B	02/12/13	10000
Nitrate	BDL	1.0	mg/kg	9056	02/14/13	1
Sulfate	390	50.	mg/kg	9056	02/14/13	1
Iron	11000	5.0	mg/kg	6010B	02/13/13	1
Benzene	0.0049	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	107.		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	76.	20.	mg/kg	3546/DRO	02/14/13	5
Surrogate recovery(%) o-Terphenyl	51.3		% Rec.	3546/DRO	02/14/13	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 18, 2013

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB08-020713 12-14FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 12:00

ESC Sample # : L619643-02

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	18000		col/g	9215B	02/12/13	10000
Nitrate	BDL	1.0	mg/kg	9056	02/14/13	1
Sulfate	380	50.	mg/kg	9056	02/14/13	1
Iron	13000	5.0	mg/kg	6010B	02/13/13	1
Benzene	BDL	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	107.		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	480	200	mg/kg	3546/DRO	02/16/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/16/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 18, 2013

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB08-020713 15-17FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 13:00

ESC Sample # : L619643-03

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	3.0		col/g	9215B	02/12/13	100
Nitrate	BDL	1.0	mg/kg	9056	02/14/13	1
Sulfate	1300	100	mg/kg	9056	02/15/13	2
Iron	16000	5.0	mg/kg	6010B	02/13/13	1
Benzene	0.070	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	96.6		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	780	40.	mg/kg	3546/DRO	02/14/13	10
Surrogate recovery(%) o-Terphenyl	105.		% Rec.	3546/DRO	02/14/13	10

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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# REPORT OF ANALYSIS

February 18, 2013

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB08-020713 20-22FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 13:05

ESC Sample # : L619643-04

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	190		col/g	9215B	02/12/13	100
Nitrate	BDL	1.0	mg/kg	9056	02/14/13	1
Sulfate	210	50.	mg/kg	9056	02/14/13	1
Iron	15000	5.0	mg/kg	6010B	02/13/13	1
Benzene	0.088	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	600	40.	mg/kg	3546/DRO	02/14/13	10
Surrogate recovery(%) o-Terphenyl	92.0		% Rec.	3546/DRO	02/14/13	10

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L619643-01	WG637367	SAMP	Standard Plate Count	R2547057	T8W
L619643-02	WG636930	SAMP	o-Terphenyl	R2545657	J7
	WG637367	SAMP	Standard Plate Count	R2547057	T8W
L619643-03	WG637367	SAMP	Standard Plate Count	R2547057	T8W
L619643-04	WG637367	SAMP	Standard Plate Count	R2547057	T8W

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
W	(ESC)-The laboratory analysis was from a sample collected in an improper container

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
02/18/13 at 16:48:43

TSR Signing Reports: 358  
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). ONLY log soil samples under this account. Waters get logged under ENCRCO. Log all PAHs as PAHSIM. Try not to report benzene as BDL above a 250x dilution.

Sample: L619643-01 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/18/13 16:48

Sample: L619643-02 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/18/13 16:48

Sample: L619643-03 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/18/13 16:48

Sample: L619643-04 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/18/13 16:48



**YOUR LAB OF CHOICE**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
143 Diamond Avenue

Parachute, CO 81635

Quality Assurance Report  
Level II

L619643

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February 18, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG636321	02/12/13 13:43
a,a,a-Trifluorotoluene(PID)		% Rec.	108.8	54-144	WG636321	02/12/13 13:43
Iron	< 5	mg/kg			WG636466	02/13/13 09:43
TPH (GC/FID) High Fraction	< 4	mg/kg			WG636331	02/14/13 14:41
o-Terphenyl		% Rec.	88.30	50-150	WG636331	02/14/13 14:41
Nitrate	< 1	mg/kg			WG636820	02/14/13 19:26
Sulfate	< 50	mg/kg			WG636820	02/14/13 19:26
TPH (GC/FID) High Fraction	< 4	mg/kg			WG636930	02/15/13 22:39
o-Terphenyl		% Rec.	81.10	50-150	WG636930	02/15/13 22:39

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Iron	mg/kg	11000	11800	7.02	20	L619726-01	WG636466

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0500	100.	76-113	WG636321
a,a,a-Trifluorotoluene(PID)				107.4	54-144	WG636321
Iron	mg/kg	13100	11000	84.0	50.8-150	WG636466
TPH (GC/FID) High Fraction	mg/kg	60	48.3	80.5	50-150	WG636331
o-Terphenyl				96.90	50-150	WG636331
Nitrate	mg/kg	20	20.1	101.	80-120	WG636820
Sulfate	mg/kg	200	205.	103.	85-115	WG636820
TPH (GC/FID) High Fraction	mg/kg	60	47.2	78.7	50-150	WG636930
o-Terphenyl				79.60	50-150	WG636930

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0475	0.0500	95.0	76-113	5.27	20	WG636321
a,a,a-Trifluorotoluene(PID)				109.2	54-144			WG636321
TPH (GC/FID) High Fraction	mg/kg	44.5	48.3	74.0	50-150	8.13	20	WG636331
o-Terphenyl				88.80	50-150			WG636331
Nitrate	mg/kg	20.0	20.1	100.	80-120	0.499	20	WG636820
Sulfate	mg/kg	204.	205.	102.	85-115	0.489	20	WG636820

\* Performance of this Analyte is outside of established criteria.  
For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Quality Assurance Report  
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February 18, 2013

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) High Fraction	mg/kg	47.9	47.2	80.0	50-150	1.47	20	WG636930
o-Terphenyl				79.50	50-150			WG636930

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Benzene	mg/kg	0.267	0	.05	107.	32-137	L619463-01	WG636321
a,a,a-Trifluorotoluene(PID)					106.5	54-144		WG636321
Iron	mg/kg	11900	11800	50	200.*	75-125	L619726-01	WG636466
TPH (GC/FID) High Fraction	mg/kg	159.	102.	60	95.2	50-150	L619529-16	WG636331
o-Terphenyl					80.40	50-150		WG636331

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.258	0.267	103.	32-137	3.44	39	L619463-01	WG636321
a,a,a-Trifluorotoluene(PID)				107.2	54-144				WG636321
Iron	mg/kg	12100	11900	600.*	75-125	1.67	20	L619726-01	WG636466
TPH (GC/FID) High Fraction	mg/kg	192.	159.	150.	50-150	18.9	20	L619529-16	WG636331
o-Terphenyl				80.50	50-150				WG636331

Batch number /Run number / Sample number cross reference

WG636321: R2540417: L619643-01 02 03 04  
WG636466: R2541503: L619643-01 02 03 04  
WG636331: R2543537: L619643-01 03 04  
WG636820: R2544337: L619643-01 02 03 04  
WG636930: R2545657: L619643-02  
WG637367: R2547057: L619643-01 02 03 04

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

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EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Monday February 18, 2013

Report Number: L619644


Samples Received: 02/11/13

Client Project: 033413003

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 18, 2013

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB09-020713 10-12FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 13:50

ESC Sample # : L619644-01

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	13000		col/g	9215B	02/12/13	10000
Nitrate	BDL	1.0	mg/kg	9056	02/15/13	1
Sulfate	460	50.	mg/kg	9056	02/15/13	1
Iron	12000	5.0	mg/kg	6010B	02/13/13	1
Benzene	0.0064	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	108.		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	23.	20.	mg/kg	3546/DRO	02/13/13	5
Surrogate recovery(%) o-Terphenyl	53.8		% Rec.	3546/DRO	02/13/13	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 18, 2013

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB09-020713 12-14FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 13:55

ESC Sample # : L619644-02

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	11000		col/g	9215B	02/12/13	10000
Nitrate	BDL	1.0	mg/kg	9056	02/15/13	1
Sulfate	270	50.	mg/kg	9056	02/15/13	1
Iron	10000	5.0	mg/kg	6010B	02/17/13	1
Benzene	0.016	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	108.		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	BDL	20.	mg/kg	3546/DRO	02/13/13	5
Surrogate recovery(%) o-Terphenyl	54.6		% Rec.	3546/DRO	02/13/13	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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L619644-02 (DRO) - Dilution due to matrix



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(615) 758-5858  
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Tax I.D. 62-0814289

Est. 1970

# REPORT OF ANALYSIS

February 18, 2013

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB09-020713 15-17FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 14:10

ESC Sample # : L619644-03

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	220		col/g	9215B	02/12/13	100
Nitrate	BDL	1.0	mg/kg	9056	02/15/13	1
Sulfate	370	50.	mg/kg	9056	02/15/13	1
Iron	16000	5.0	mg/kg	6010B	02/17/13	1
Benzene	0.096	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	1300	40.	mg/kg	3546/DRO	02/13/13	10
Surrogate recovery(%) o-Terphenyl	122.		% Rec.	3546/DRO	02/13/13	10

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 18, 2013

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB09-020713 20-22FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 14:25

ESC Sample # : L619644-04

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	6.0		col/g	9215B	02/12/13	100
Nitrate	BDL	1.0	mg/kg	9056	02/15/13	1
Sulfate	BDL	50.	mg/kg	9056	02/15/13	1
Iron	16000	5.0	mg/kg	6010B	02/17/13	1
Benzene	0.086	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	720	40.	mg/kg	3546/DRO	02/13/13	10
Surrogate recovery(%) o-Terphenyl	51.6		% Rec.	3546/DRO	02/13/13	10

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L619644-01	WG637373	SAMP	Standard Plate Count	R2547059	T8W
L619644-02	WG636483	SAMP	TPH (GC/FID) High Fraction	R2541358	O
	WG637373	SAMP	Standard Plate Count	R2547059	T8W
L619644-03	WG636523	SAMP	Iron	R2546544	V
	WG637373	SAMP	Standard Plate Count	R2547059	T8W
L619644-04	WG637373	SAMP	Standard Plate Count	R2547059	T8W

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
V	(ESC) - Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.
W	(ESC)-The laboratory analysis was from a sample collected in an improper container

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
02/18/13 at 16:49:10

TSR Signing Reports: 358  
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). ONLY log soil samples under this account. Waters get logged under ENCRCO. Log all PAHs as PAHSIM. Try not to report benzene as BDL above a 250x dilution.

Sample: L619644-01 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/18/13 16:48

Sample: L619644-02 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/18/13 16:48

Sample: L619644-03 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/18/13 16:48

Sample: L619644-04 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/18/13 16:48



**YOUR LAB OF CHOICE**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
143 Diamond Avenue

Parachute, CO 81635

Quality Assurance Report  
Level II

L619644

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

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February 18, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG636321	02/12/13 13:43
a,a,a-Trifluorotoluene(PID)		% Rec.	108.8	54-144	WG636321	02/12/13 13:43
TPH (GC/FID) High Fraction	< 4	mg/kg			WG636483	02/13/13 10:17
o-Terphenyl		% Rec.	67.50	50-150	WG636483	02/13/13 10:17
Iron	< 5	mg/kg			WG636466	02/13/13 09:43
Nitrate	< 1	mg/kg			WG636820	02/14/13 19:26
Sulfate	< 50	mg/kg			WG636820	02/14/13 19:26
Iron	< 5	mg/kg			WG636481	02/17/13 17:53
Iron	< 5	mg/kg			WG636523	02/17/13 20:08

Analyte	Units	Result	Duplicate		Limit	Ref Samp	Batch
			Duplicate	RPD			
Iron	mg/kg	11000	11800	7.02	20	L619726-01	WG636466
Iron	mg/kg	8900	9830	9.93	20	L619784-01	WG636481
Iron	mg/kg	15000	16000	6.45	20	L619644-03	WG636523

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0500	100.	76-113	WG636321
a,a,a-Trifluorotoluene(PID)				107.4	54-144	WG636321
TPH (GC/FID) High Fraction	mg/kg	60	47.0	78.3	50-150	WG636483
o-Terphenyl				77.10	50-150	WG636483
Iron	mg/kg	13100	11000	84.0	50.8-150	WG636466
Nitrate	mg/kg	20	20.1	101.	80-120	WG636820
Sulfate	mg/kg	200	205.	103.	85-115	WG636820
Iron	mg/kg	13100	11600	88.6	50.8-150	WG636481
Iron	mg/kg	13100	14300	109.	50.8-150	WG636523

Analyte	Units	Result	Laboratory Control Sample Duplicate		Limit	RPD	Limit	Batch
			Ref	%Rec				
Benzene	mg/kg	0.0475	0.0500	95.0	76-113	5.27	20	WG636321
a,a,a-Trifluorotoluene(PID)				109.2	54-144			WG636321

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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February 18, 2013

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	50.1	47.0	84.0 83.00	50-150 50-150	6.57	20	WG636483 WG636483
Nitrate	mg/kg	20.0	20.1	100.	80-120	0.499	20	WG636820
Sulfate	mg/kg	204.	205.	102.	85-115	0.489	20	WG636820

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Benzene a,a,a-Trifluorotoluene(PID)	mg/kg	0.267	0	.05	107. 106.5	32-137 54-144	L619463-01	WG636321 WG636321
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	37.4	0	12	62.3 46.30*	50-150 50-150	L619134-01	WG636483 WG636483
Iron	mg/kg	11900	11800	50	200.*	75-125	L619726-01	WG636466
Iron	mg/kg	9520	9830	50	0*	75-125	L619784-01	WG636481
Iron	mg/kg	16000	16000	50	0*	75-125	L619644-03	WG636523

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Benzene a,a,a-Trifluorotoluene(PID)	mg/kg	0.258	0.267	103. 107.2	32-137 54-144	3.44	39	L619463-01	WG636321 WG636321
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	40.0	37.4	66.6 44.30*	50-150 50-150	6.67	20	L619134-01	WG636483 WG636483
Iron	mg/kg	12100	11900	600.*	75-125	1.67	20	L619726-01	WG636466
Iron	mg/kg	9840	9520	20.0*	75-125	3.31	20	L619784-01	WG636481
Iron	mg/kg	17300	16000	2600*	75-125	7.81	20	L619644-03	WG636523

Batch number /Run number / Sample number cross reference

WG636321: R2540417: L619644-01 02 03 04  
WG636483: R2541358: L619644-01 02 03 04  
WG636466: R2541503: L619644-01  
WG636820: R2544337: L619644-01 02 03 04  
WG636481: R2546077: L619644-02  
WG636523: R2546544: L619644-03 04  
WG637373: R2547059: L619644-01 02 03 04

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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February 18, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Tuesday February 19, 2013

Report Number: L619645

Samples Received: 02/11/13

Client Project: 033413003

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 19, 2013

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB10-020713 10-12FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 15:05

ESC Sample # : L619645-01

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	9800		col/g	9215B	02/12/13	10000
Nitrate	BDL	1.0	mg/kg	9056	02/15/13	1
Sulfate	280	50.	mg/kg	9056	02/15/13	1
Iron	13000	5.0	mg/kg	6010B	02/17/13	1
Benzene	0.0053	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	109.		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	65.	20.	mg/kg	3546/DRO	02/13/13	5
Surrogate recovery(%) o-Terphenyl	62.7		% Rec.	3546/DRO	02/13/13	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 19, 2013

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB10-020713 12-14FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 15:10

ESC Sample # : L619645-02

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	15000		col/g	9215B	02/12/13	10000
Nitrate	BDL	1.0	mg/kg	9056	02/15/13	1
Sulfate	340	50.	mg/kg	9056	02/15/13	1
Iron	16000	5.0	mg/kg	6010B	02/17/13	1
Benzene	0.0037	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	108.		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	140	20.	mg/kg	3546/DRO	02/15/13	5
Surrogate recovery(%) o-Terphenyl	56.6		% Rec.	3546/DRO	02/15/13	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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# REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 19, 2013

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB10-020713 15-17FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 15:25

ESC Sample # : L619645-03

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	1600		col/g	9215B	02/12/13	1000
Nitrate	BDL	1.0	mg/kg	9056	02/15/13	1
Sulfate	150	50.	mg/kg	9056	02/15/13	1
Iron	13000	5.0	mg/kg	6010B	02/17/13	1
Benzene	1.1	0.0025	mg/kg	8021B	02/12/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021B	02/12/13	5
TPH (GC/FID) High Fraction	730	160	mg/kg	3546/DRO	02/15/13	40
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/15/13	40

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

February 19, 2013

Date Received : February 11, 2013  
Description : H29A  
Sample ID : H29A-SB10-020713 20-22FT  
Collected By : Chris McKisson  
Collection Date : 02/07/13 15:40

ESC Sample # : L619645-04

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	180		col/g	9215B	02/12/13	10000
Nitrate	BDL	1.0	mg/kg	9056	02/15/13	1
Sulfate	140	50.	mg/kg	9056	02/15/13	1
Iron	11000	5.0	mg/kg	6010B	02/17/13	1
Benzene	0.021	0.0025	mg/kg	8021B	02/13/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	98.4		% Rec.	8021B	02/13/13	5
TPH (GC/FID) High Fraction	550	80.	mg/kg	3546/DRO	02/19/13	20
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/19/13	20

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L619645-01	WG637394	SAMP	Standard Plate Count	R2547077	T8W
L619645-02	WG637394	SAMP	Standard Plate Count	R2547077	T8W
L619645-03	WG636485	SAMP	o-Terphenyl	R2544698	J7
	WG637394	SAMP	Standard Plate Count	R2547077	T8W
L619645-04	WG637332	SAMP	o-Terphenyl	R2547519	J7
	WG637394	SAMP	Standard Plate Count	R2547077	T8W

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
W	(ESC)-The laboratory analysis was from a sample collected in an improper container

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

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- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
02/19/13 at 11:05:56

TSR Signing Reports: 358  
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). ONLY log soil samples under this account. Waters get logged under ENCRCO. Log all PAHs as PAHSIM. Try not to report benzene as BDL above a 250x dilution.

Sample: L619645-01 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/19/13 11:05

Sample: L619645-02 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/19/13 11:05

Sample: L619645-03 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/19/13 11:05

Sample: L619645-04 Account: ENCANACO Received: 02/11/13 09:30 Due Date: 02/18/13 00:00 RPT Date: 02/19/13 11:05



**YOUR LAB OF CHOICE**

EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
143 Diamond Avenue

Parachute, CO 81635

Quality Assurance Report  
Level II

L619645

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

February 19, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG636321	02/12/13 13:43
a,a,a-Trifluorotoluene(PID)		% Rec.	108.8	54-144	WG636321	02/12/13 13:43
Benzene	< .0005	mg/kg			WG636581	02/13/13 14:27
a,a,a-Trifluorotoluene(PID)		% Rec.	100.1	54-144	WG636581	02/13/13 14:27
TPH (GC/FID) High Fraction	< 4	mg/kg			WG636483	02/13/13 10:17
o-Terphenyl		% Rec.	67.50	50-150	WG636483	02/13/13 10:17
Nitrate	< 1	mg/kg			WG636820	02/14/13 19:26
Sulfate	< 50	mg/kg			WG636820	02/14/13 19:26
TPH (GC/FID) High Fraction	< 4	mg/kg			WG636485	02/14/13 20:27
o-Terphenyl		% Rec.	69.10	50-150	WG636485	02/14/13 20:27
Iron	< 5	mg/kg			WG636523	02/17/13 20:08
TPH (GC/FID) High Fraction	< 4	mg/kg			WG637332	02/18/13 21:09
o-Terphenyl		% Rec.	69.90	50-150	WG637332	02/18/13 21:09

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Iron	mg/kg	15000	16000	6.45	20	L619644-03	WG636523

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0500	100.	76-113	WG636321
a,a,a-Trifluorotoluene(PID)				107.4	54-144	WG636321
Benzene	mg/kg	.05	0.0460	92.1	76-113	WG636581
a,a,a-Trifluorotoluene(PID)				99.75	54-144	WG636581
TPH (GC/FID) High Fraction	mg/kg	60	47.0	78.3	50-150	WG636483
o-Terphenyl				77.10	50-150	WG636483
Nitrate	mg/kg	20	20.1	101.	80-120	WG636820
Sulfate	mg/kg	200	205.	103.	85-115	WG636820
TPH (GC/FID) High Fraction	mg/kg	60	44.2	73.6	50-150	WG636485
o-Terphenyl				66.20	50-150	WG636485
Iron	mg/kg	13100	14300	109.	50.8-150	WG636523
TPH (GC/FID) High Fraction	mg/kg	60	40.7	67.9	50-150	WG637332
o-Terphenyl				72.90	50-150	WG637332

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0475	0.0500	95.0	76-113	5.27	20	WG636321
a,a,a-Trifluorotoluene(PID)				109.2	54-144			WG636321
Benzene	mg/kg	0.0459	0.0460	92.0	76-113	0.420	20	WG636581
a,a,a-Trifluorotoluene(PID)				99.44	54-144			WG636581
TPH (GC/FID) High Fraction	mg/kg	50.1	47.0	84.0	50-150	6.57	20	WG636483
o-Terphenyl				83.00	50-150			WG636483
Nitrate	mg/kg	20.0	20.1	100.	80-120	0.499	20	WG636820
Sulfate	mg/kg	204.	205.	102.	85-115	0.489	20	WG636820
TPH (GC/FID) High Fraction	mg/kg	43.2	44.2	72.0	50-150	2.13	20	WG636485
o-Terphenyl				64.80	50-150			WG636485
TPH (GC/FID) High Fraction	mg/kg	47.1	40.7	78.0	50-150	14.6	20	WG637332
o-Terphenyl				78.20	50-150			WG637332

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.267	0	.05	107.	32-137	L619463-01	WG636321
a,a,a-Trifluorotoluene(PID)					106.5	54-144		WG636321
Benzene	mg/kg	0.207	0.000810	.05	82.4	32-137	L619929-01	WG636581
a,a,a-Trifluorotoluene(PID)					98.82	54-144		WG636581
TPH (GC/FID) High Fraction	mg/kg	37.4	0	12	62.3	50-150	L619134-01	WG636483
o-Terphenyl					46.30*	50-150		WG636483
TPH (GC/FID) High Fraction	mg/kg	45.2	0	60	75.3	50-150	L619798-02	WG636485
o-Terphenyl					72.70	50-150		WG636485
Iron	mg/kg	16000	16000	50	0*	75-125	L619644-03	WG636523

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.258	0.267	103.	32-137	3.44	39	L619463-01	WG636321
a,a,a-Trifluorotoluene(PID)				107.2	54-144				WG636321
Benzene	mg/kg	0.219	0.207	87.1	32-137	5.59	39	L619929-01	WG636581
a,a,a-Trifluorotoluene(PID)				98.64	54-144				WG636581
TPH (GC/FID) High Fraction	mg/kg	40.0	37.4	66.6	50-150	6.67	20	L619134-01	WG636483
o-Terphenyl				44.30*	50-150				WG636483

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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
TPH (GC/FID) High Fraction	mg/kg	40.9	45.2	68.2	50-150	9.84	20	L619798-02	WG636485
o-Terphenyl				68.50	50-150				WG636485
Iron	mg/kg	17300	16000	2600*	75-125	7.81	20	L619644-03	WG636523

Batch number /Run number / Sample number cross reference

WG636321: R2540417: L619645-01 02 03  
WG636581: R2540659: L619645-04  
WG636483: R2541358: L619645-01  
WG636820: R2544337: L619645-01 02 03 04  
WG636485: R2544698: L619645-02 03  
WG636523: R2546544: L619645-01 02 03 04  
WG637394: R2547077: L619645-01 02 03 04  
WG637332: R2547519: L619645-04

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Friday February 15, 2013

Report Number: L619511

Samples Received: 02/09/13

Client Project: 033413003

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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# REPORT OF ANALYSIS

February 15, 2013

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : February 09, 2013  
Description : H29A  
Sample ID : H29A-SB11-020813 10-12 FT  
Collected By : Chris McKisson  
Collection Date : 02/08/13 09:00

ESC Sample # : L619511-01

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	950		col/g	9215B	02/09/13	1000
Nitrate	BDL	1.0	mg/kg	9056	02/14/13	1
Sulfate	2600	250	mg/kg	9056	02/14/13	5
Iron	16000	5.0	mg/kg	6010B	02/14/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 02/15/13 14:55 Printed: 02/15/13 16:52



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REPORT OF ANALYSIS

February 15, 2013

Chris Hines / Matt Kasten  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : February 09, 2013  
Description : H29A  
Sample ID : H29A-SB11-020813 15-17 FT  
Collected By : Chris McKisson  
Collection Date : 02/08/13 09:20

ESC Sample # : L619511-02

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	180		col/g	9215B	02/09/13	100
Nitrate	BDL	1.0	mg/kg	9056	02/14/13	1
Sulfate	82.	50.	mg/kg	9056	02/14/13	1
Iron	16000	5.0	mg/kg	6010B	02/14/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : February 09, 2013  
Description : H29A  
Sample ID : H29A-SB11-020813 20-22 FT  
Collected By : Chris McKisson  
Collection Date : 02/08/13 09:35

ESC Sample # : L619511-03

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	3.0		col/g	9215B	02/09/13	100
Nitrate	BDL	1.0	mg/kg	9056	02/14/13	1
Sulfate	310	50.	mg/kg	9056	02/14/13	1
Iron	14000	5.0	mg/kg	6010B	02/14/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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143 Diamond Avenue  
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Date Received : February 09, 2013  
Description : H29A  
Sample ID : H29A-SB11-020813 10-12 FT  
Collected By : Chris McKisson  
Collection Date : 02/08/13 09:00

ESC Sample # : L619511-04

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021B	02/11/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021B	02/11/13	5
TPH (GC/FID) High Fraction	660	200	mg/kg	3546/DRO	02/12/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/12/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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February 15, 2013

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143 Diamond Avenue  
Parachute, CO 81635

Date Received : February 09, 2013  
Description : H29A  
Sample ID : H29A-SB11-020813 15-17 FT  
Collected By : Chris McKisson  
Collection Date : 02/08/13 09:20

ESC Sample # : L619511-05

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	1.8	0.025	mg/kg	8021B	02/11/13	50
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	109.		% Rec.	8021B	02/11/13	50
TPH (GC/FID) High Fraction	1800	400	mg/kg	3546/DRO	02/12/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/12/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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143 Diamond Avenue  
Parachute, CO 81635

Date Received : February 09, 2013  
Description : H29A  
Sample ID : H29A-SB11-020813 20-22 FT  
Collected By : Chris McKisson  
Collection Date : 02/08/13 09:35

ESC Sample # : L619511-06

Site ID :

Project # : 033413003

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.14	0.0025	mg/kg	8021B	02/11/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	101.		% Rec.	8021B	02/11/13	5
TPH (GC/FID) High Fraction	1600	400	mg/kg	3546/DRO	02/12/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	3546/DRO	02/12/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L619511-01	WG637085	SAMP	Standard Plate Count	R2544197	T8W
L619511-02	WG637085	SAMP	Standard Plate Count	R2544197	T8W
L619511-03	WG637085	SAMP	Standard Plate Count	R2544197	T8W
L619511-04	WG636189	SAMP	o-Terphenyl	R2537917	J7
L619511-05	WG636189	SAMP	o-Terphenyl	R2537917	J7
L619511-06	WG636189	SAMP	o-Terphenyl	R2537917	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
W	(ESC)-The laboratory analysis was from a sample collected in an improper container

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



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Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Benzene	< .0005	mg/kg			WG636164	02/10/13 18:34
Ethylbenzene	< .0005	mg/kg			WG636164	02/10/13 18:34
Toluene	< .005	mg/kg			WG636164	02/10/13 18:34
Total Xylene	< .0015	mg/kg			WG636164	02/10/13 18:34
a,a,a-Trifluorotoluene(PID)		% Rec.	108.6	54-144	WG636164	02/10/13 18:34
Nitrate	< 1	mg/kg			WG636384	02/14/13 04:30
Sulfate	< 50	mg/kg			WG636384	02/14/13 04:30
Iron	< 5	mg/kg			WG636406	02/14/13 18:27

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Iron	mg/kg	9000	8290	8.21	20	L619539-06	WG636406

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Benzene	mg/kg	.05	0.0505	101.	76-113	WG636164
Ethylbenzene	mg/kg	.05	0.0548	110.	78-115	WG636164
Toluene	mg/kg	.05	0.0525	105.	76-114	WG636164
Total Xylene	mg/kg	.15	0.164	109.	81-118	WG636164
a,a,a-Trifluorotoluene(PID)				106.5	54-144	WG636164
Nitrate	mg/kg	20	19.3	96.5	80-120	WG636384
Sulfate	mg/kg	200	197.	98.5	85-115	WG636384
Iron	mg/kg	13100	12900	98.5	50.8-150	WG636406

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Benzene	mg/kg	0.0506	0.0505	101.	76-113	0.130	20	WG636164
Ethylbenzene	mg/kg	0.0555	0.0548	111.	78-115	1.23	20	WG636164
Toluene	mg/kg	0.0533	0.0525	107.	76-114	1.49	20	WG636164
Total Xylene	mg/kg	0.164	0.164	110.	81-118	0.400	20	WG636164
a,a,a-Trifluorotoluene(PID)				106.9	54-144			WG636164
Nitrate	mg/kg	18.9	19.3	94.0	80-120	2.09	20	WG636384
Sulfate	mg/kg	193.	197.	96.0	85-115	2.05	20	WG636384

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Benzene	mg/kg	0.235	0	.05	94.0	32-137	L619440-01	WG636164
Ethylbenzene	mg/kg	0.246	0	.05	98.4	10-150	L619440-01	WG636164
Toluene	mg/kg	0.239	0	.05	95.8	20-142	L619440-01	WG636164
Total Xylene	mg/kg	0.722	0	.15	96.3	16-141	L619440-01	WG636164
a,a,a-Trifluorotoluene(PID)					106.8	54-144		WG636164
TPH (GC/FID) High Fraction	mg/kg	46.4	0	60	77.3	50-150	L619510-01	WG636189
o-Terphenyl					79.70	50-150		WG636189

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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EnCana Oil & Gas Inc. - CO  
Chris Hines / Matt Kasten  
143 Diamond Avenue

Parachute, CO 81635

Quality Assurance Report  
Level II

L619511

12065 Lebanon Rd.  
Mt. Juliet, TN 37122  
(615) 758-5858  
1-800-767-5859  
Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

February 15, 2013

Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Iron	mg/kg	9480	8290	50	2380*	75-125	L619539-06	WG636406

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Benzene	mg/kg	0.215	0.235	86.1	32-137	8.77	39	L619440-01	WG636164
Ethylbenzene	mg/kg	0.228	0.246	91.1	10-150	7.71	44	L619440-01	WG636164
Toluene	mg/kg	0.220	0.239	87.8	20-142	8.65	42	L619440-01	WG636164
Total Xylene	mg/kg	0.671	0.722	89.5	16-141	7.37	46	L619440-01	WG636164
a,a,a-Trifluorotoluene(PID)				107.1	54-144				WG636164
TPH (GC/FID) High Fraction	mg/kg	45.9	46.4	76.4	50-150	1.18	20	L619510-01	WG636189
o-Terphenyl				75.40	50-150				WG636189
Iron	mg/kg	10200	9480	3820*	75-125	7.32	20	L619539-06	WG636406

Batch number /Run number / Sample number cross reference

WG636164: R2536179: L619511-04 05 06  
WG636189: R2537917: L619511-04 05 06  
WG636384: R2543178: L619511-01 02 03  
WG636406: R2543746: L619511-01 02 03  
WG637085: R2544197: L619511-01 02 03

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

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February 15, 2013

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Chris McKisson / Rob Fishburn (LT Env)  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Wednesday May 08, 2013

Report Number: L633327


Samples Received: 05/01/13

Client Project: H29A PIT

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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# REPORT OF ANALYSIS

Chris McKisson / Rob Fishburn (LT E  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

May 08, 2013

Date Received : May 01, 2013  
Description : H29A  
Sample ID : H29-SB12-042913 40-42FT  
Collected By : Chris McKisson  
Collection Date : 04/29/13 14:45

ESC Sample # : L633327-01

Site ID : H29A

Project # : H29A PIT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	<13		col/g	9215B	05/03/13	1000
Nitrate	BDL	1.0	mg/kg	9056	05/04/13	1
Sulfate	410	50.	mg/kg	9056	05/04/13	1
Iron	15000	5.0	mg/kg	6010B	05/07/13	1
TPH (GC/FID) High Fraction	BDL	200	mg/kg	8015D/DRO	05/06/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	8015D/DRO	05/06/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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# REPORT OF ANALYSIS

Chris McKisson / Rob Fishburn (LT E  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

May 08, 2013

Date Received : May 01, 2013  
Description : H29A  
Sample ID : H29-SB12-042913 60-62FT  
Collected By : Chris McKisson  
Collection Date : 04/29/13 15:35

ESC Sample # : L633327-02

Site ID : H29A

Project # : H29A PIT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	1100		col/g	9215B	05/03/13	1000
Nitrate	BDL	1.0	mg/kg	9056	05/04/13	1
Sulfate	1600	250	mg/kg	9056	05/04/13	5
Iron	14000	5.0	mg/kg	6010B	05/08/13	1
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	8015D/DRO	05/03/13	1
Surrogate recovery(%) o-Terphenyl	60.1		% Rec.	8015D/DRO	05/03/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L633327-01	WG660021	SAMP	Iron	R2657562	B
	WG659384	SAMP	TPH (GC/FID) High Fraction	R2654960	O
	WG659384	SAMP	o-Terphenyl	R2654960	J7
	WG660207	SAMP	Standard Plate Count	R2657680	T8
L633327-02	WG660021	SAMP	Iron	R2657562	B
	WG659384	SAMP	TPH (GC/FID) High Fraction	R2652981	J6
	WG660207	SAMP	Standard Plate Count	R2657680	T8

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
B	(EPA) - The indicated compound was found in the associated method blank as well as the laboratory sample.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy** - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision** - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate** - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC** - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



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143 Diamond Avenue

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Quality Assurance Report  
Level II

May 08, 2013

L633327

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Nitrate	< 1	mg/kg			WG659303	05/03/13 21:55
Sulfate	< 50	mg/kg			WG659303	05/03/13 21:55
TPH (GC/FID) High Fraction	< 4	mg/kg			WG659384	05/03/13 19:17
o-Terphenyl		% Rec.	89.60	50-150	WG659384	05/03/13 19:17
Iron	12.0	mg/kg			WG660021	05/07/13 17:25

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Sulfate	mg/kg	0	0	0	20	L632857-02	WG659303
Sulfate	mg/kg	0	0	0	20	L632911-12	WG659303
Iron	mg/kg	12000	12300	2.47	20	L634101-01	WG660021

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Nitrate	mg/kg	20	20.6	103.	80-120	WG659303
Sulfate	mg/kg	200	208.	104.	85-115	WG659303
TPH (GC/FID) High Fraction	mg/kg	60	45.4	75.7	50-150	WG659384
o-Terphenyl				81.60	50-150	WG659384
Iron	mg/kg	13100	10600	80.9	50.8-150	WG660021

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Nitrate	mg/kg	20.7	20.6	104.	80-120	0.484	20	WG659303
Sulfate	mg/kg	209.	208.	104.	85-115	0.480	20	WG659303
TPH (GC/FID) High Fraction	mg/kg	43.9	45.4	73.0	50-150	3.33	20	WG659384
o-Terphenyl				80.20	50-150			WG659384

Analyte	Units	Matrix Spike				Limit	Ref Samp	Batch
		MS Res	Ref Res	TV	% Rec			
Sulfate	mg/kg	546.	0	500	109.	80-120	L632911-04	WG659303
TPH (GC/FID) High Fraction	mg/kg	32.7	3.70	60	48.4*	50-150	L633327-02	WG659384
o-Terphenyl					56.80	50-150		WG659384
Iron	mg/kg	11900	12300	50	0*	75-125	L634101-01	WG660021

Analyte	Units	Matrix Spike Duplicate			Limit	RPD	Limit	Ref Samp	Batch
		MSD	Ref	%Rec					
Sulfate	mg/kg	539.	546.	108.	80-120	1.29	20	L632911-04	WG659303

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref	Samp	Batch
			Ref	%Rec						
TPH (GC/FID) High Fraction	mg/kg	36.6	32.7	54.8	50-150	11.1	20	L633327-02		WG659384
o-Terphenyl				55.90	50-150					WG659384
Iron	mg/kg	12500	11900	400.*	75-125	4.92	20	L634101-01		WG660021

Batch number /Run number / Sample number cross reference

WG659303: R2652420: L633327-01 02  
WG659384: R2652981 R2654960: L633327-02 01  
WG660021: R2657562: L633327-01 02  
WG660207: R2657680: L633327-01 02

\* \* Calculations are performed prior to rounding of reported values.  
\* Performance of this Analyte is outside of established criteria.  
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Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

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Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Chris McKisson / Rob Fishburn (LT Env)  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Wednesday May 08, 2013

Report Number: L633483


Samples Received: 05/02/13

Client Project: H29A PIT

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jared Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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# REPORT OF ANALYSIS

Chris McKisson / Rob Fishburn (LT E  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

May 08, 2013

Date Received : May 02, 2013  
Description : H29A  
Sample ID : H29A-SB12-043013 70-72 FT  
Collected By : Chris McKisson  
Collection Date : 04/30/13 08:50

ESC Sample # : L633483-01

Site ID : H29A

Project # : H29A PIT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	200		col/g	9215B	05/02/13	1000
Nitrate	BDL	1.0	mg/kg	9056	05/04/13	1
Sulfate	3100	250	mg/kg	9056	05/07/13	5
Iron	15000	5.0	mg/kg	6010B	05/07/13	1
TPH (GC/FID) High Fraction	12.	4.0	mg/kg	8015D/DRO	05/06/13	1
Surrogate recovery(%) o-Terphenyl	71.0		% Rec.	8015D/DRO	05/06/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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# REPORT OF ANALYSIS

Chris McKisson / Rob Fishburn (LT E  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

May 08, 2013

Date Received : May 02, 2013  
Description : H29A  
Sample ID : H29A-SB13-043013 30-32 FT  
Collected By : Chris McKisson  
Collection Date : 04/30/13 11:10

ESC Sample # : L633483-02

Site ID : H29A

Project # : H29A PIT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	<18		col/g	9215B	05/02/13	1000
Nitrate	BDL	1.0	mg/kg	9056	05/04/13	1
Sulfate	190	50.	mg/kg	9056	05/04/13	1
Iron	14000	5.0	mg/kg	6010B	05/07/13	1
TPH (GC/FID) High Fraction	1400	200	mg/kg	8015D/DRO	05/07/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	8015D/DRO	05/07/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Chris McKisson / Rob Fishburn (LT E  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

May 08, 2013

Date Received : May 02, 2013  
Description : H29A  
Sample ID : H29A-SB13-043013 45-47 FT  
Collected By : Chris McKisson  
Collection Date : 04/30/13 11:45

ESC Sample # : L633483-03

Site ID : H29A

Project # : H29A PIT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	84.		col/g	9215B	05/02/13	1000
Nitrate	1.6	1.0	mg/kg	9056	05/04/13	1
Sulfate	3800	250	mg/kg	9056	05/07/13	5
Iron	16000	5.0	mg/kg	6010B	05/07/13	1
TPH (GC/FID) High Fraction	72.	4.0	mg/kg	8015D/DRO	05/07/13	1
Surrogate recovery(%) o-Terphenyl	62.2		% Rec.	8015D/DRO	05/07/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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# REPORT OF ANALYSIS

Chris McKisson / Rob Fishburn (LT E  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

May 08, 2013

Date Received : May 02, 2013  
Description : H29A  
Sample ID : H29A-SB13-043013 55-57 FT  
Collected By : Chris McKisson  
Collection Date : 04/30/13 12:15

ESC Sample # : L633483-04

Site ID : H29A

Project # : H29A PIT

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	<11		col/g	9215B	05/02/13	1000
Nitrate	1.5	1.0	mg/kg	9056	05/04/13	1
Sulfate	1800	250	mg/kg	9056	05/07/13	5
Iron	18000	5.0	mg/kg	6010B	05/07/13	1
TPH (GC/FID) High Fraction	69.	4.0	mg/kg	8015D/DRO	05/07/13	1
Surrogate recovery(%) o-Terphenyl	54.0		% Rec.	8015D/DRO	05/07/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L633483-01	WG660211	SAMP	Standard Plate Count	R2657682	T8
L633483-02	WG659484	SAMP	o-Terphenyl	R2657540	J7
	WG660211	SAMP	Standard Plate Count	R2657682	T8
L633483-03	WG659515	SAMP	Sulfate	R2658100	V
	WG660211	SAMP	Standard Plate Count	R2657682	T8
L633483-04	WG660211	SAMP	Standard Plate Count	R2657682	T8

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
V	(ESC) - Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.



**YOUR LAB OF CHOICE**

EnCana Oil & Gas Inc. - CO  
Chris McKisson / Rob Fishburn (LT Env)  
143 Diamond Avenue

Parachute, CO 81635

Quality Assurance Report  
Level II

L633483

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May 08, 2013

Analyte	Result	Laboratory Blank		Limit	Batch	Date Analyzed
		Units	% Rec			
Nitrate	< 1	mg/kg			WG659516	05/04/13 12:16
Sulfate	< 50	mg/kg			WG659516	05/04/13 12:16
Iron	< 5	mg/kg			WG659418	05/07/13 00:38
TPH (GC/FID) High Fraction	< 4	mg/kg			WG659484	05/07/13 08:33
o-Terphenyl		% Rec.	65.10	50-150	WG659484	05/07/13 08:33
Sulfate	< 50	mg/kg			WG659515	05/07/13 10:36

Analyte	Units	Duplicate		RPD	Limit	Ref Samp	Batch
		Result	Duplicate				
Iron	mg/kg	17000	16400	3.59	20	L633498-03	WG659418

Analyte	Units	Laboratory Control Sample		% Rec	Limit	Batch
		Known Val	Result			
Nitrate	mg/kg	20	20.3	102.	80-120	WG659516
Sulfate	mg/kg	200	209.	105.	85-115	WG659516
Iron	mg/kg	13100	13000	99.2	50.8-150	WG659418
TPH (GC/FID) High Fraction	mg/kg	60	44.3	73.9	50-150	WG659484
o-Terphenyl				69.40	50-150	WG659484
Sulfate	mg/kg	200	199.	99.5	85-115	WG659515

Analyte	Units	Laboratory Control Sample Duplicate			Limit	RPD	Limit	Batch
		Result	Ref	%Rec				
Nitrate	mg/kg	20.7	20.3	104.	80-120	1.95	20	WG659516
Sulfate	mg/kg	213.	209.	106.	85-115	1.90	20	WG659516
TPH (GC/FID) High Fraction	mg/kg	45.8	44.3	76.0	50-150	3.33	20	WG659484
o-Terphenyl				74.90	50-150			WG659484
Sulfate	mg/kg	197.	199.	98.0	85-115	1.01	20	WG659515

Analyte	Units	Matrix Spike			% Rec	Limit	Ref Samp	Batch
		MS Res	Ref Res	TV				
Nitrate	mg/kg	54.7	1.60	50	106.	80-120	L633483-03	WG659516
Iron	mg/kg	19300	16400	50	5800*	75-125	L633498-03	WG659418
TPH (GC/FID) High Fraction	mg/kg	36.0	0	60	60.1	50-150	L633684-02	WG659484
o-Terphenyl					60.90	50-150		WG659484

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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Analyte	Units	MS Res	Matrix Spike		% Rec	Limit	Ref Samp	Batch
			Ref Res	TV				
Sulfate	mg/kg	4110	3800	100	62.0*	80-120	L633483-03	WG659515

Analyte	Units	MSD	Matrix Spike Duplicate		Limit	RPD	Limit	Ref Samp	Batch
			Ref	%Rec					
Nitrate	mg/kg	51.7	54.7	100.	80-120	5.64	20	L633483-03	WG659516
Iron	mg/kg	23000	19300	13200*	75-125	17.5	20	L633498-03	WG659418
TPH (GC/FID) High Fraction o-Terphenyl	mg/kg	31.1	36.0	51.9	50-150	14.7	20	L633684-02	WG659484
				57.40	50-150				WG659484
Sulfate	mg/kg	3710	4110	0*	80-120	10.2	20	L633483-03	WG659515

Batch number /Run number / Sample number cross reference

WG659516: R2653500: L633483-01 02 03 04  
WG659384: R2654960: L633483-01  
WG659418: R2655742: L633483-01 02 03 04  
WG659484: R2657540: L633483-02 03 04  
WG660211: R2657682: L633483-01 02 03 04  
WG659515: R2658100: L633483-01 03 04

\* \* Calculations are performed prior to rounding of reported values.

\* Performance of this Analyte is outside of established criteria.

For additional information, please see Attachment A 'List of Analytes with QC Qualifiers.'



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The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.



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Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Monday July 29, 2013

Report Number: L647320


Samples Received: 07/18/13

Client Project: H29A

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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# REPORT OF ANALYSIS

July 29, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 18, 2013  
Description : H29A  
Sample ID : 071613-H29A PIT W01 30-32FT  
Collected By : Dustin Held  
Collection Date : 07/16/13 11:00

ESC Sample # : L647320-01

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021B	07/20/13	5
Toluene	BDL	0.025	mg/kg	8021B	07/20/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021B	07/20/13	5
Total Xylene	BDL	0.0075	mg/kg	8021B	07/20/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021B	07/20/13	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	8015D/DRO	07/25/13	1
Surrogate recovery(%) o-Terphenyl	77.3		% Rec.	8015D/DRO	07/25/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

July 29, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 18, 2013  
Description : H29A  
Sample ID : 071613-H29A PIT W01 40-42FT  
Collected By : Dustin Held  
Collection Date : 07/16/13 12:50

ESC Sample # : L647320-02

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021B	07/20/13	5
Toluene	BDL	0.025	mg/kg	8021B	07/20/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021B	07/20/13	5
Total Xylene	BDL	0.0075	mg/kg	8021B	07/20/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021B	07/20/13	5
TPH (GC/FID) High Fraction	27.	4.0	mg/kg	8015D/DRO	07/28/13	1
Surrogate recovery(%) o-Terphenyl	99.4		% Rec.	8015D/DRO	07/28/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Summary of Remarks For Samples Printed  
07/29/13 at 11:54:21

TSR Signing Reports: 358  
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). Log all PAHs as PAHSIM. DRO and DRO-SGT needed if TPH is listed twice on COC, one being TPH-GEL EXTRACT.

Sample: L647320-01 Account: ENCANACO Received: 07/18/13 09:30 Due Date: 07/25/13 00:00 RPT Date: 07/29/13 11:54

Sample: L647320-02 Account: ENCANACO Received: 07/18/13 09:30 Due Date: 07/25/13 00:00 RPT Date: 07/29/13 11:54



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Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Tuesday July 30, 2013

Report Number: L647741


Samples Received: 07/20/13

Client Project: H29A

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

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FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
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# REPORT OF ANALYSIS

July 30, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

ESC Sample # : L647741-01

Date Received : July 20, 2013  
Description : H29A

Site ID : H29A

Sample ID : 071813-H29A (PITE02)

Project # : H29A

Collected By : Dustin Held  
Collection Date : 07/18/13 12:35

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.085	0.0025	mg/kg	8021B	07/25/13	5
Toluene	0.046	0.025	mg/kg	8021B	07/25/13	5
Ethylbenzene	0.013	0.0025	mg/kg	8021B	07/25/13	5
Total Xylene	0.16	0.0075	mg/kg	8021B	07/25/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	102.		% Rec.	8021B	07/25/13	5
TPH (GC/FID) High Fraction	960	400	mg/kg	8015D/DRO	07/30/13	100
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	8015D/DRO	07/30/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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# REPORT OF ANALYSIS

July 30, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 20, 2013  
Description : H29A  
Sample ID : 071813-H29A(PITE02)  
Collected By : Dustin Held  
Collection Date : 07/18/13 14:50

ESC Sample # : L647741-02

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021B	07/25/13	5
Toluene	BDL	0.025	mg/kg	8021B	07/25/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021B	07/25/13	5
Total Xylene	BDL	0.0075	mg/kg	8021B	07/25/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	103.		% Rec.	8021B	07/25/13	5
TPH (GC/FID) High Fraction	12.	4.0	mg/kg	8015D/DRO	07/27/13	1
Surrogate recovery(%) o-Terphenyl	80.2		% Rec.	8015D/DRO	07/27/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 07/30/13 16:55 Printed: 07/30/13 16:55

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L647741-01	WG673435	SAMP	o-Terphenyl	R2761060	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

Qualifier Report Information

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- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
07/30/13 at 16:55:33

TSR Signing Reports: 358  
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). Log all PAHs as PAHSIM. DRO and DRO-SGT needed if TPH is listed twice on COC, one being TPH-GEL EXTRACT.

Sample: L647741-01 Account: ENCANACO Received: 07/20/13 09:00 Due Date: 07/26/13 00:00 RPT Date: 07/30/13 16:55

Sample: L647741-02 Account: ENCANACO Received: 07/20/13 09:00 Due Date: 07/26/13 00:00 RPT Date: 07/30/13 16:55



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Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Monday July 29, 2013

Report Number: L647320


Samples Received: 07/18/13

Client Project: H29A

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

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FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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REPORT OF ANALYSIS

July 29, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 18, 2013  
Description : H29A  
Sample ID : 071613-H29A PIT W01 30-32FT  
Collected By : Dustin Held  
Collection Date : 07/16/13 11:00

ESC Sample # : L647320-01

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021B	07/20/13	5
Toluene	BDL	0.025	mg/kg	8021B	07/20/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021B	07/20/13	5
Total Xylene	BDL	0.0075	mg/kg	8021B	07/20/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	105.		% Rec.	8021B	07/20/13	5
TPH (GC/FID) High Fraction	BDL	4.0	mg/kg	8015D/DRO	07/25/13	1
Surrogate recovery(%) o-Terphenyl	77.3		% Rec.	8015D/DRO	07/25/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 07/29/13 11:54 Printed: 07/29/13 11:54



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REPORT OF ANALYSIS

July 29, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

ESC Sample # : L647320-02

Date Received : July 18, 2013  
Description : H29A  
Sample ID : 071613-H29A PIT W01 40-42FT  
Collected By : Dustin Held  
Collection Date : 07/16/13 12:50

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021B	07/20/13	5
Toluene	BDL	0.025	mg/kg	8021B	07/20/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021B	07/20/13	5
Total Xylene	BDL	0.0075	mg/kg	8021B	07/20/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	104.		% Rec.	8021B	07/20/13	5
TPH (GC/FID) High Fraction	27.	4.0	mg/kg	8015D/DRO	07/28/13	1
Surrogate recovery(%) o-Terphenyl	99.4		% Rec.	8015D/DRO	07/28/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 07/29/13 11:54 Printed: 07/29/13 11:54

Summary of Remarks For Samples Printed  
07/29/13 at 11:54:21

TSR Signing Reports: 358  
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). Log all PAHs as PAHSIM. DRO and DRO-SGT needed if TPH is listed twice on COC, one being TPH-GEL EXTRACT.

Sample: L647320-01 Account: ENCANACO Received: 07/18/13 09:30 Due Date: 07/25/13 00:00 RPT Date: 07/29/13 11:54

Sample: L647320-02 Account: ENCANACO Received: 07/18/13 09:30 Due Date: 07/25/13 00:00 RPT Date: 07/29/13 11:54



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Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Tuesday July 30, 2013

Report Number: L648148


Samples Received: 07/24/13

Client Project: H29A

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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# REPORT OF ANALYSIS

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

July 30, 2013

Date Received : July 24, 2013  
Description : H29A  
Sample ID : 071913-H29A(PITS01) 10-12FT  
Collected By : Dustin Held  
Collection Date : 07/19/13 08:40

ESC Sample # : L648148-01

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.091	0.025	mg/kg	8021B	07/29/13	50
Toluene	BDL	0.25	mg/kg	8021B	07/29/13	50
Ethylbenzene	0.12	0.025	mg/kg	8021B	07/29/13	50
Total Xylene	1.6	0.075	mg/kg	8021B	07/29/13	50
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	110.		% Rec.	8021B	07/29/13	50
TPH (GC/FID) High Fraction	700	20.	mg/kg	8015D/DRO	07/30/13	5
Surrogate recovery(%) o-Terphenyl	59.6		% Rec.	8015D/DRO	07/30/13	5

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

July 30, 2013

Date Received : July 24, 2013  
Description : H29A  
Sample ID : 072213-H29A(PITS01) 65-67FT  
Collected By : Dustin Held  
Collection Date : 07/22/13 15:15

ESC Sample # : L648148-02

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021B	07/26/13	5
Toluene	BDL	0.025	mg/kg	8021B	07/26/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021B	07/26/13	5
Total Xylene	BDL	0.0075	mg/kg	8021B	07/26/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	94.5		% Rec.	8021B	07/26/13	5
TPH (GC/FID) High Fraction	25.	4.0	mg/kg	8015D/DRO	07/30/13	1
Surrogate recovery(%) o-Terphenyl	67.9		% Rec.	8015D/DRO	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 07/30/13 16:17 Printed: 07/30/13 16:18

Summary of Remarks For Samples Printed  
07/30/13 at 16:18:09

TSR Signing Reports: 358  
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). Log all PAHs as PAHSIM. DRO and DRO-SGT needed if TPH is listed twice on COC, one being TPH-GEL EXTRACT.

Sample: L648148-01 Account: ENCANACO Received: 07/24/13 09:30 Due Date: 07/31/13 00:00 RPT Date: 07/30/13 16:17

Sample: L648148-02 Account: ENCANACO Received: 07/24/13 09:30 Due Date: 07/31/13 00:00 RPT Date: 07/30/13 16:17



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Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Wednesday July 31, 2013

Report Number: L648445


Samples Received: 07/25/13

Client Project: H29A

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGE01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:40

ESC Sample # : L648445-01

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	11.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGE01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:40

ESC Sample # : L648445-02

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	11.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGE01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:40

ESC Sample # : L648445-03

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	9.3	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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# REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
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Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGE01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:40

ESC Sample # : L648445-04

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	9.6	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGE01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:40

ESC Sample # : L648445-05

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	11.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGN01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:45

ESC Sample # : L648445-06

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	12.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGN01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:45

ESC Sample # : L648445-07

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	12.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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# REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGN01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:45

ESC Sample # : L648445-08

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	12.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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# REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGN01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:45

ESC Sample # : L648445-09

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	15.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGN01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:45

ESC Sample # : L648445-10  
Site ID : H29A  
Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	9.8	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
Note:  
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# REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGW01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:55

ESC Sample # : L648445-11

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	10.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGW01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:55

ESC Sample # : L648445-12

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	11.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGW01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:55

ESC Sample # : L648445-13

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	12.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGW01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:55

ESC Sample # : L648445-14

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	12.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGW01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 13:55

ESC Sample # : L648445-15

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	11.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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# REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGS01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 14:00

ESC Sample # : L648445-16

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	16.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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# REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGS01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 14:00

ESC Sample # : L648445-17

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	11.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGS01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 14:00

ESC Sample # : L648445-18

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	14.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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# REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGS01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 14:00

ESC Sample # : L648445-19

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	9.4	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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# REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGS01)  
Collected By : Dustin Held  
Collection Date : 07/23/13 14:00

ESC Sample # : L648445-20

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	9.2	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGS02)  
Collected By : Dustin Held  
Collection Date : 07/23/13 14:10

ESC Sample # : L648445-21  
Site ID : H29A  
Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	7.8	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
Note:  
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REPORT OF ANALYSIS

July 31, 2013

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGS02)  
Collected By : Dustin Held  
Collection Date : 07/23/13 14:10

ESC Sample # : L648445-22

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	9.6	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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July 31, 2013

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143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGS02)  
Collected By : Dustin Held  
Collection Date : 07/23/13 14:10

ESC Sample # : L648445-23

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	14.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

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REPORT OF ANALYSIS

July 31, 2013

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143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGS02)  
Collected By : Dustin Held  
Collection Date : 07/23/13 14:10

ESC Sample # : L648445-24

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	11.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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REPORT OF ANALYSIS

July 31, 2013

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EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

Date Received : July 25, 2013  
Description : H29A  
Sample ID : 072313-H29A(BGS02)  
Collected By : Dustin Held  
Collection Date : 07/23/13 14:10

ESC Sample # : L648445-25

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Arsenic	10.	1.0	mg/kg	6010B	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L648445-09	WG673931	SAMP	Arsenic	R2761782	J3
L648445-25	WG674310	SAMP	Arsenic	R2761460	J6

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
07/31/13 at 10:28:45

TSR Signing Reports: 358  
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). Log all PAHs as PAHSIM. DRO and DRO-SGT needed if TPH is listed twice on COC, one being TPH-GEL EXTRACT.

Sample: L648445-01 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28

Sample: L648445-02 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -01

Sample: L648445-03 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -01

Sample: L648445-04 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -01

Sample: L648445-05 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -01

Sample: L648445-06 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28

Sample: L648445-07 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -06

Sample: L648445-08 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -06

Sample: L648445-09 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -06

Sample: L648445-10 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -06

Sample: L648445-11 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28

Sample: L648445-12 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -11

Sample: L648445-13 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -11

Sample: L648445-14 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -11

Sample: L648445-15 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -11

Sample: L648445-16 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28

Sample: L648445-17 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -16

Sample: L648445-18 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -16

Sample: L648445-19 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -16

Sample: L648445-20 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -16

Sample: L648445-21 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28

Sample: L648445-22 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -21

Sample: L648445-23 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -21

Sample: L648445-24 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -21

Sample: L648445-25 Account: ENCANACO Received: 07/25/13 09:30 Due Date: 08/01/13 00:00 RPT Date: 07/31/13 10:28  
Run from container on -21



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Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Monday August 05, 2013

Report Number: L648616


Samples Received: 07/26/13

Client Project: H29A

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

Accreditation is only applicable to the test methods specified on each scope of accreditation held by ESC Lab Sciences.

Note: The use of the preparatory EPA Method 3511 is not approved or endorsed by the CA ELAP.

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# REPORT OF ANALYSIS

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

August 05, 2013

Date Received : July 26, 2013  
Description : H29A  
  
Sample ID : 072413-H29A SBW01  
  
Collected By : Dustin Held  
Collection Date : 07/24/13 14:45

ESC Sample # : L648616-01  
  
Site ID : H29A  
  
Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	07/31/13	1
Chromium, Trivalent	11.	0.50	mg/kg	Calc.	08/02/13	1
ORP	200		mV	2580 B-2011	07/31/13	1
pH	7.8		su	9045D	08/01/13	1
Sodium Adsorption Ratio	1.6			Calc.	07/31/13	1
Specific Conductance	2800		umhos/cm	9050AMod	07/29/13	1
Mercury	0.026	0.020	mg/kg	7471	07/30/13	1
Arsenic	6.8	1.0	mg/kg	6010B	08/02/13	1
Barium	310	0.25	mg/kg	6010B	08/02/13	1
Cadmium	BDL	0.25	mg/kg	6010B	08/02/13	1
Chromium	11.	0.50	mg/kg	6010B	08/02/13	1
Copper	14.	1.0	mg/kg	6010B	08/02/13	1
Lead	7.9	0.25	mg/kg	6010B	08/02/13	1
Nickel	9.7	1.0	mg/kg	6010B	08/02/13	1
Selenium	BDL	1.0	mg/kg	6010B	08/02/13	1
Silver	BDL	0.50	mg/kg	6010B	08/02/13	1
Zinc	37.	1.5	mg/kg	6010B	08/02/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	07/27/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	07/27/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	07/27/13	5
Total Xylene	BDL	0.0075	mg/kg	8021/8015	07/27/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	07/27/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	94.6		% Rec.	8021/8015	07/27/13	5
a,a,a-Trifluorotoluene(PID)	94.0		% Rec.	8021/8015	07/27/13	5
TPH (GC/FID) High Fraction	12.	4.0	mg/kg	8015D/DRO	07/30/13	1
Surrogate recovery(%)						
o-Terphenyl	91.1		% Rec.	8015D/DRO	07/30/13	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1
Acenaphthene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1
Acenaphthylene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L648616-01 (PH) - 7.8@21.6c



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# REPORT OF ANALYSIS

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

August 05, 2013

Date Received : July 26, 2013  
Description : H29A  
Sample ID : 072413-H29A SBW01  
Collected By : Dustin Held  
Collection Date : 07/24/13 14:45

ESC Sample # : L648616-01

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1
Fluorene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1
Naphthalene	BDL	0.020	mg/kg	8270C-SIM	08/02/13	1
Phenanthrene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	08/02/13	1
1-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	08/02/13	1
2-Methylnaphthalene	BDL	0.020	mg/kg	8270C-SIM	08/02/13	1
2-Chloronaphthalene	BDL	0.020	mg/kg	8270C-SIM	08/02/13	1
Surrogate Recovery						
Nitrobenzene-d5	91.0		% Rec.	8270C-SIM	08/02/13	1
2-Fluorobiphenyl	94.9		% Rec.	8270C-SIM	08/02/13	1
p-Terphenyl-d14	99.1		% Rec.	8270C-SIM	08/02/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 08/05/13 15:41 Printed: 08/05/13 16:03  
L648616-01 (PH) - 7.8@21.6c



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Est. 1970

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Wednesday July 31, 2013

Report Number: L648621


Samples Received: 07/26/13

Client Project: H29A

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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# REPORT OF ANALYSIS

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

July 31, 2013

Date Received : July 26, 2013  
Description : H29A  
Sample ID : 072413-H29A PITW02 24-26FT  
Collected By : Dustin Held  
Collection Date : 07/24/13 09:15

ESC Sample # : L648621-01

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	BDL	0.0025	mg/kg	8021B	07/28/13	5
Toluene	BDL	0.025	mg/kg	8021B	07/28/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021B	07/28/13	5
Total Xylene	BDL	0.0075	mg/kg	8021B	07/28/13	5
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	95.0		% Rec.	8021B	07/28/13	5
TPH (GC/FID) High Fraction	220	200	mg/kg	8015D/DRO	07/31/13	50
Surrogate recovery(%) o-Terphenyl	0.00		% Rec.	8015D/DRO	07/31/13	50

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 07/31/13 11:44 Printed: 07/31/13 11:44



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# REPORT OF ANALYSIS

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

July 31, 2013

Date Received : July 26, 2013  
Description : H29A  
Sample ID : 072413-H29A PITW02 59-61FT  
Collected By : Dustin Held  
Collection Date : 07/24/13 11:45

ESC Sample # : L648621-02

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzene	0.21	0.025	mg/kg	8021B	07/28/13	50
Toluene	0.76	0.25	mg/kg	8021B	07/28/13	50
Ethylbenzene	0.14	0.025	mg/kg	8021B	07/28/13	50
Total Xylene	1.4	0.075	mg/kg	8021B	07/28/13	50
Surrogate Recovery(%) a,a,a-Trifluorotoluene(PID)	96.2		% Rec.	8021B	07/28/13	50
TPH (GC/FID) High Fraction	9.7	4.0	mg/kg	8015D/DRO	07/30/13	1
Surrogate recovery(%) o-Terphenyl	85.7		% Rec.	8015D/DRO	07/30/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 07/31/13 11:44 Printed: 07/31/13 11:44

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L648621-01	WG674543	SAMP	o-Terphenyl	R2761981	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
07/31/13 at 11:44:58

TSR Signing Reports: 358  
R5 - Desired TAT

Log ALL samples for EDD (COGCC EDD). Log all PAHs as PAHSIM. DRO and DRO-SGT needed if TPH is listed twice on COC, one being TPH-GEL EXTRACT.

Sample: L648621-01 Account: ENCANACO Received: 07/26/13 09:30 Due Date: 08/02/13 00:00 RPT Date: 07/31/13 11:44

Sample: L648621-02 Account: ENCANACO Received: 07/26/13 09:30 Due Date: 08/02/13 00:00 RPT Date: 07/31/13 11:44



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Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Tuesday August 06, 2013

Report Number: L648911


Samples Received: 07/27/13

Client Project: H29A

Description: Dustin Held

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
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SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
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TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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# REPORT OF ANALYSIS

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

August 06, 2013

Date Received : July 27, 2013  
Description : Dustin Held  
Sample ID : 072513 - H29A (SBE01) 75-77FT  
Collected By : Dustin Held  
Collection Date : 07/25/13 14:05

ESC Sample # : L648911-01

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chromium, Hexavalent	BDL	2.0	mg/kg	3060A/7196A	07/31/13	1
Chromium, Trivalent	23.	2.0	mg/kg	Calc.	08/02/13	1
ORP	160		mV	2580 B-2011	08/02/13	1
pH	8.1		su	9045D	08/01/13	1
Sodium Adsorption Ratio	3.4			Calc.	07/31/13	1
Specific Conductance	2200		umhos/cm	9050AMod	07/31/13	1
Mercury	BDL	0.020	mg/kg	7471	07/31/13	1
Arsenic	15.	1.0	mg/kg	6010B	08/02/13	1
Barium	240	0.25	mg/kg	6010B	08/02/13	1
Cadmium	0.30	0.25	mg/kg	6010B	08/02/13	1
Chromium	29.	0.50	mg/kg	6010B	08/06/13	1
Copper	24.	1.0	mg/kg	6010B	08/02/13	1
Lead	13.	0.25	mg/kg	6010B	08/02/13	1
Nickel	16.	1.0	mg/kg	6010B	08/02/13	1
Selenium	2.5	1.0	mg/kg	6010B	08/02/13	1
Silver	BDL	0.50	mg/kg	6010B	08/02/13	1
Zinc	54.	1.5	mg/kg	6010B	08/02/13	1
Benzene	BDL	0.0025	mg/kg	8021/8015	07/31/13	5
Toluene	BDL	0.025	mg/kg	8021/8015	07/31/13	5
Ethylbenzene	BDL	0.0025	mg/kg	8021/8015	07/31/13	5
Total Xylene	0.0086	0.0075	mg/kg	8021/8015	07/31/13	5
TPH (GC/FID) Low Fraction	BDL	0.50	mg/kg	GRO	07/31/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	99.5		% Rec.	8021/8015	07/31/13	5
a,a,a-Trifluorotoluene(PID)	97.9		% Rec.	8021/8015	07/31/13	5
TPH (GC/FID) High Fraction	50.	4.0	mg/kg	8015D/DRO	08/02/13	1
Surrogate recovery(%)						
o-Terphenyl	87.4		% Rec.	8015D/DRO	08/02/13	1
Polynuclear Aromatic Hydrocarbons						
Anthracene	0.022	0.0060	mg/kg	8270C-SIM	08/03/13	1
Acenaphthene	BDL	0.12	mg/kg	8270C-SIM	08/04/13	20
Acenaphthylene	BDL	0.12	mg/kg	8270C-SIM	08/04/13	20
Benzo(a)anthracene	BDL	0.0060	mg/kg	8270C-SIM	08/03/13	1
Benzo(a)pyrene	BDL	0.0060	mg/kg	8270C-SIM	08/03/13	1

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L648911-01 (PH) - 8.1@21.2c



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# REPORT OF ANALYSIS

Chris Hines  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

August 06, 2013

Date Received : July 27, 2013  
Description : Dustin Held  
Sample ID : 072513 - H29A (SBE01) 75-77FT  
Collected By : Dustin Held  
Collection Date : 07/25/13 14:05

ESC Sample # : L648911-01

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Benzo(b)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	08/03/13	1
Benzo(g,h,i)perylene	BDL	0.0060	mg/kg	8270C-SIM	08/03/13	1
Benzo(k)fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	08/03/13	1
Chrysene	BDL	0.0060	mg/kg	8270C-SIM	08/03/13	1
Dibenz(a,h)anthracene	BDL	0.0060	mg/kg	8270C-SIM	08/03/13	1
Fluoranthene	BDL	0.0060	mg/kg	8270C-SIM	08/03/13	1
Fluorene	0.12	0.12	mg/kg	8270C-SIM	08/04/13	20
Indeno(1,2,3-cd)pyrene	BDL	0.0060	mg/kg	8270C-SIM	08/03/13	1
Naphthalene	2.6	0.40	mg/kg	8270C-SIM	08/04/13	20
Phenanthrene	0.066	0.0060	mg/kg	8270C-SIM	08/03/13	1
Pyrene	BDL	0.0060	mg/kg	8270C-SIM	08/03/13	1
1-Methylnaphthalene	1.7	0.40	mg/kg	8270C-SIM	08/04/13	20
2-Methylnaphthalene	4.3	0.40	mg/kg	8270C-SIM	08/04/13	20
2-Chloronaphthalene	BDL	0.40	mg/kg	8270C-SIM	08/04/13	20
Surrogate Recovery						
Nitrobenzene-d5	28.2		% Rec.	8270C-SIM	08/04/13	20
2-Fluorobiphenyl	89.9		% Rec.	8270C-SIM	08/04/13	20
p-Terphenyl-d14	120.		% Rec.	8270C-SIM	08/03/13	1

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

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Reported: 08/06/13 19:07 Printed: 08/06/13 19:08  
L648911-01 (PH) - 8.1@21.2c

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L648911-01	WG674806	SAMP	Nitrobenzene-d5	R2767641	J7
	WG674806	SAMP	2-Fluorobiphenyl	R2767641	J7

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed  
08/06/13 at 19:08:08

TSR Signing Reports: 358  
RX - Priority Rush

Log ALL samples for EDD (COGCC EDD). Log all PAHs as PAHSIM. DRO and DRO-SGT needed if TPH is listed twice on COC, one being TPH-GEL EXTRACT.

Sample: L648911-01 Account: ENCANACO Received: 07/27/13 09:30 Due Date: 08/07/13 00:00 RPT Date: 08/06/13 19:07



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Est. 1970

Project Manager  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

## Report Summary

Friday August 09, 2013

Report Number: L649481


Samples Received: 08/01/13

Client Project: H29A

Description: H29A

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By:

  
Jarred Willis , ESC Representative

### Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 100789, AL - 40660, CA - 01157CA, CT - PH-0197,  
FL - E87487, GA - 923, IN - C-IN-01, KY - 90010, KYUST - 0016,  
NC - ENV375/DW21704/BIO041, ND - R-140, NJ - TN002, NJ NELAP - TN002,  
SC - 84004, TN - 2006, VA - 460132, WV - 233, AZ - 0612,  
MN - 047-999-395, NY - 11742, WI - 998093910, NV - TN000032011-1,  
TX - T104704245-11-3, OK - 9915, PA - 68-02979, IA Lab #364

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Est. 1970

# REPORT OF ANALYSIS

Project Manager  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

August 09, 2013

Date Received : August 01, 2013  
Description : H29A  
Sample ID : 072613-H29A (SBS01) 65-67FT  
Collected By : Dustin Held  
Collection Date : 07/26/13 13:40

ESC Sample # : L649481-01

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Standard Plate Count	<120		col/g	9215B	08/01/13	10000
Nitrate	BDL	1.0	mg/kg	9056	08/02/13	1
Sulfate	410	50.	mg/kg	9056	08/02/13	1
Chromium,Hexavalent	BDL	2.0	mg/kg	3060A/7196A	08/05/13	1
Chromium,Trivalent	16.	2.0	mg/kg	Calc.	08/02/13	1
pH	9.4		su	9045D	08/07/13	1
Sodium Adsorption Ratio	2.1			Calc.	08/03/13	1
Specific Conductance	1800		umhos/cm	9050AMod	08/07/13	1
Mercury	0.035	0.020	mg/kg	7471	08/06/13	1
Arsenic	50.	1.0	mg/kg	6010B	08/02/13	1
Barium	300	0.25	mg/kg	6010B	08/02/13	1
Cadmium	0.64	0.25	mg/kg	6010B	08/02/13	1
Chromium	16.	0.50	mg/kg	6010B	08/02/13	1
Copper	43.	1.0	mg/kg	6010B	08/02/13	1
Iron	14000	5.0	mg/kg	6010B	08/02/13	1
Lead	27.	1.2	mg/kg	6010B	08/02/13	5
Nickel	18.	1.0	mg/kg	6010B	08/02/13	1
Selenium	2.7	1.0	mg/kg	6010B	08/02/13	1
Silver	BDL	0.50	mg/kg	6010B	08/02/13	1
Zinc	54.	1.5	mg/kg	6010B	08/02/13	1
Benzene	0.11	0.0025	mg/kg	8021/8015	08/02/13	5
Toluene	0.11	0.025	mg/kg	8021/8015	08/02/13	5
Ethylbenzene	0.016	0.0025	mg/kg	8021/8015	08/02/13	5
Total Xylene	0.14	0.0075	mg/kg	8021/8015	08/02/13	5
TPH (GC/FID) Low Fraction	2.2	0.50	mg/kg	GRO	08/02/13	5
Surrogate Recovery-%						
a,a,a-Trifluorotoluene(FID)	93.6		% Rec.	8021/8015	08/02/13	5
a,a,a-Trifluorotoluene(PID)	98.8		% Rec.	8021/8015	08/02/13	5
TPH (GC/FID) High Fraction	2000	200	mg/kg	8015D/DRO	08/07/13	50
Surrogate recovery(%)						
o-Terphenyl	0.00		% Rec.	8015D/DRO	08/07/13	50
Polynuclear Aromatic Hydrocarbons						
Anthracene	BDL	0.60	mg/kg	8270C-SIM	08/07/13	100

BDL - Below Detection Limit  
Det. Limit - Practical Quantitation Limit(PQL)  
L649481-01 (PH) - 9.4@22.9c  
L649481-01 (SV8270PAHSIM) - Dilution due to matrix



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# REPORT OF ANALYSIS

Project Manager  
EnCana Oil & Gas Inc. - CO  
143 Diamond Avenue  
Parachute, CO 81635

August 09, 2013

Date Received : August 01, 2013  
Description : H29A  
Sample ID : 072613-H29A (SBS01) 65-67FT  
Collected By : Dustin Held  
Collection Date : 07/26/13 13:40

ESC Sample # : L649481-01

Site ID : H29A

Project # : H29A

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Acenaphthene	BDL	0.60	mg/kg	8270C-SIM	08/07/13	100
Acenaphthylene	BDL	0.60	mg/kg	8270C-SIM	08/07/13	100
Benzo(a)anthracene	BDL	0.60	mg/kg	8270C-SIM	08/07/13	100
Benzo(a)pyrene	BDL	0.60	mg/kg	8270C-SIM	08/07/13	100
Benzo(b)fluoranthene	BDL	0.60	mg/kg	8270C-SIM	08/07/13	100
Benzo(g,h,i)perylene	BDL	0.60	mg/kg	8270C-SIM	08/07/13	100
Benzo(k)fluoranthene	BDL	0.60	mg/kg	8270C-SIM	08/07/13	100
Chrysene	BDL	0.60	mg/kg	8270C-SIM	08/07/13	100
Dibenz(a,h)anthracene	BDL	0.60	mg/kg	8270C-SIM	08/07/13	100
Fluoranthene	BDL	0.60	mg/kg	8270C-SIM	08/07/13	100
Fluorene	BDL	0.60	mg/kg	8270C-SIM	08/07/13	100
Indeno(1,2,3-cd)pyrene	BDL	0.60	mg/kg	8270C-SIM	08/07/13	100
Naphthalene	BDL	2.0	mg/kg	8270C-SIM	08/07/13	100
Phenanthrene	0.66	0.60	mg/kg	8270C-SIM	08/07/13	100
Pyrene	BDL	0.60	mg/kg	8270C-SIM	08/07/13	100
1-Methylnaphthalene	2.8	2.0	mg/kg	8270C-SIM	08/07/13	100
2-Methylnaphthalene	4.3	2.0	mg/kg	8270C-SIM	08/07/13	100
2-Chloronaphthalene	BDL	2.0	mg/kg	8270C-SIM	08/07/13	100
Surrogate Recovery						
Nitrobenzene-d5	129.		% Rec.	8270C-SIM	08/07/13	100
2-Fluorobiphenyl	177.		% Rec.	8270C-SIM	08/07/13	100
p-Terphenyl-d14	145.		% Rec.	8270C-SIM	08/07/13	100

BDL - Below Detection Limit

Det. Limit - Practical Quantitation Limit(PQL)

Note:

The reported analytical results relate only to the sample submitted.

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Reported: 08/08/13 17:41 Revised: 08/09/13 09:30

L649481-01 (PH) - 9.4@22.9c

L649481-01 (SV8270PAHSIM) - Dilution due to matrix

Attachment A  
List of Analytes with QC Qualifiers

Sample Number	Work Group	Sample Type	Analyte	Run ID	Qualifier
L649481-01	WG675095	SAMP	o-Terphenyl	R2772662	J7
	WG675099	SAMP	Nitrobenzene-d5	R2771843	J7
	WG675099	SAMP	2-Fluorobiphenyl	R2771843	J7
	WG675099	SAMP	p-Terphenyl-d14	R2771843	J7
	WG675545	SAMP	Standard Plate Count	R2770221	T8

Attachment B  
Explanation of QC Qualifier Codes

Qualifier	Meaning
J7	Surrogate recovery cannot be used for control limit evaluation due to dilution.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable "unless qualified as 'R' (Rejected)."

Definitions

- Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.
- Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Difference.
- Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromatography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.
- TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.